In This Issue—*Summing up the New York Show*

MOTOR AGE

VOL. XLI
Number 3

PUBLISHED WEEKLY AT THE MALLERS BUILDING
CHICAGO, JANUARY 19, 1922

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Three Dollars a Year

Would you like to know what the five hundred leading motor car distributors throughout America are thinking?
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Edward S. Jordan—
—Cleveland—

Entered as second class matter Sept. 19, 1899, at the post office at Chicago, Ill., under Act of March 3, 1879.

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The original, patented, "oilSEALing" angled groove of the No-Leak-O Piston Ring fills with fresh oil and empties on each stroke, giving proper oil control and maintaining a non-leaking, oil seal between piston and cylinder wall. When reversed in the top groove of each piston it keeps kerosene and unvaporized gasoline out of the oil pit.

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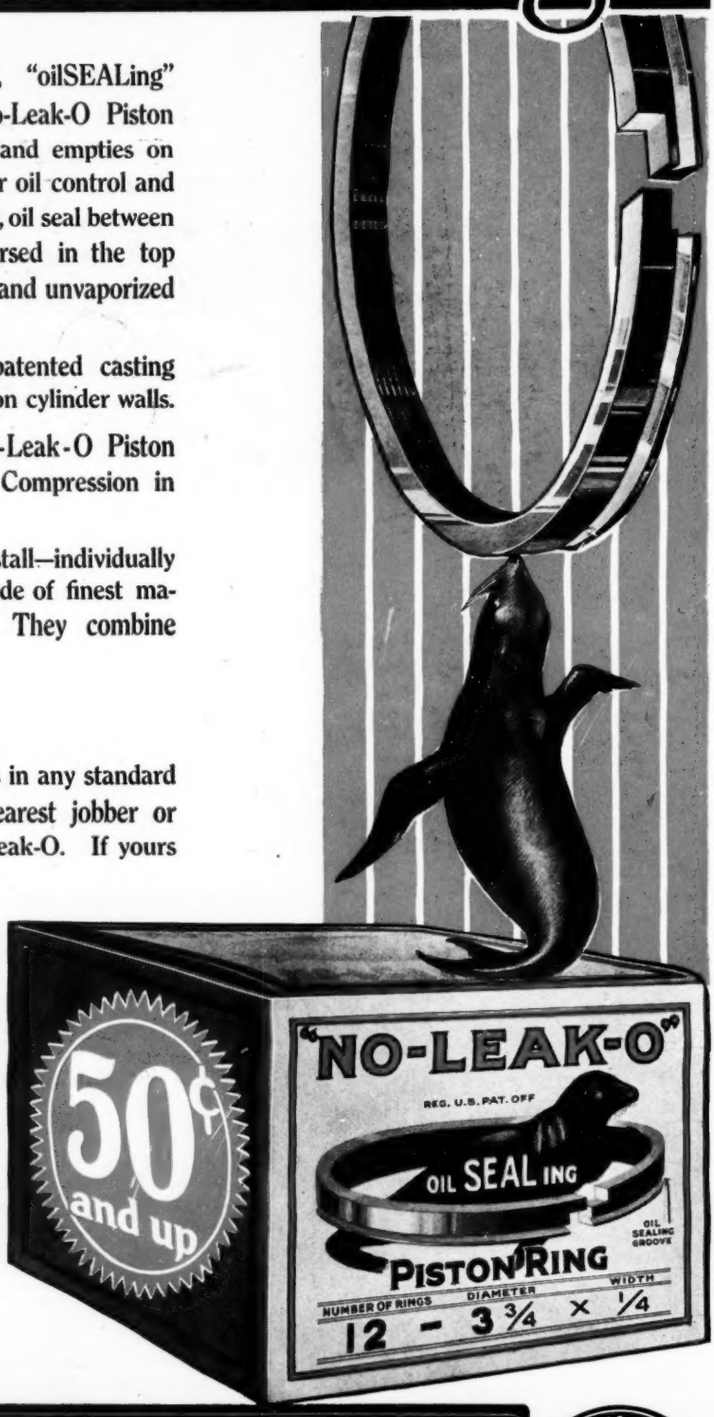

NO-LEAK-O Piston Rings

WITH THE ORIGINAL OILSEALING GROOVE

AUTOMOTIVE EQUIPMENT ASSN

MOTOR AGE

Published Every Thursday by
THE CLASS JOURNAL COMPANY
MALLERS BUILDING
59 East Madison Street, CHICAGO

Vol. XLI Chicago, January 19, 1922 No. 3

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SUBSCRIPTION RATES

United States, Mexico and U. S. Possessions	$ 3.00 per year
Canada	5.00 per year
All Other Countries in Postal Union	6.00 per year
Single Copies	35 cents

Subscriptions accepted only from the Automotive Trade

Entered as Second Class Matter Sept. 19, 1899, at the Post Office at Chicago, Ill., under Act of March 6, 1879.

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EQUIPMENT FOR FORDS

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MAKERS OF THE APCO SHOCK ABSORBER FOR FORDS

VOL. XLI. No. 3 CHICAGO, JANUARY 19, 1922 $3.00 Per Year

MOTOR AGE

New York Show Establishes Need *of* Price Stabilization

BUYING Started Well at Show But Continued Adjustments Left Doubt as to the Low Price for 1922 and Immediate Prospects Went on the Future Lists—Conservative Optimism Was Outcome and Most Visitors Went Home Happy

By CLYDE JENNINGS

BETWEEN the opening and closing of the doors for the N. A. C. C. Automobile Show in New York there was a great transformation in the mental attitude of the industry, dealers and manufacturers alike. So far as a consistent line of inquiry could reveal, there was a practical chorus of answers.

Everybody went to the New York show with the question mark as the prominent mental picture. Everybody returned home with a more or less clearly defined path in his mental picture of the future. No single incident caused this transformation, nor did any Alladin rub a lamp to bring it about.

It was the result of putting all of the questions into the melting pot and letting the prospective customer supply the fuel that fused the questions into a straight line—that has no relation to an exclamation point.

The picture that is carried home by all of those most concerned in the show—by these we mean the dealer, distributors, manufacturers of parts and vehicles who served as scene shifters and property men for the actual show visitors—is that there is going to be business this spring.

Outlook Pleasing for Sound Business Efforts

NO one apparently went home with the idea that there is to be a rush of business, that the 1919 scramble to the sales manager's office is to be repeated, but that where the dealer and the salesman goes after business consistently, supported by a rule of reason in the factory, there is a pleasant prospect. The basis of most of this reasoning is something like this:

The public apparently got the idea that those cars which were cut at or before the show had reached a final price.

The public apparently has money to spend, for the receipts at the show door were higher than ever before and the caterer in the Grand Central Palace fared better than in previous years; rooms were just as hard to find in New York hotels as in previous years; there were more dealers at the show than there had been for two years; the dealers who came were not merely interested in looking at and comparing cars but they were after information first hand as to factory policies and methods of selling.

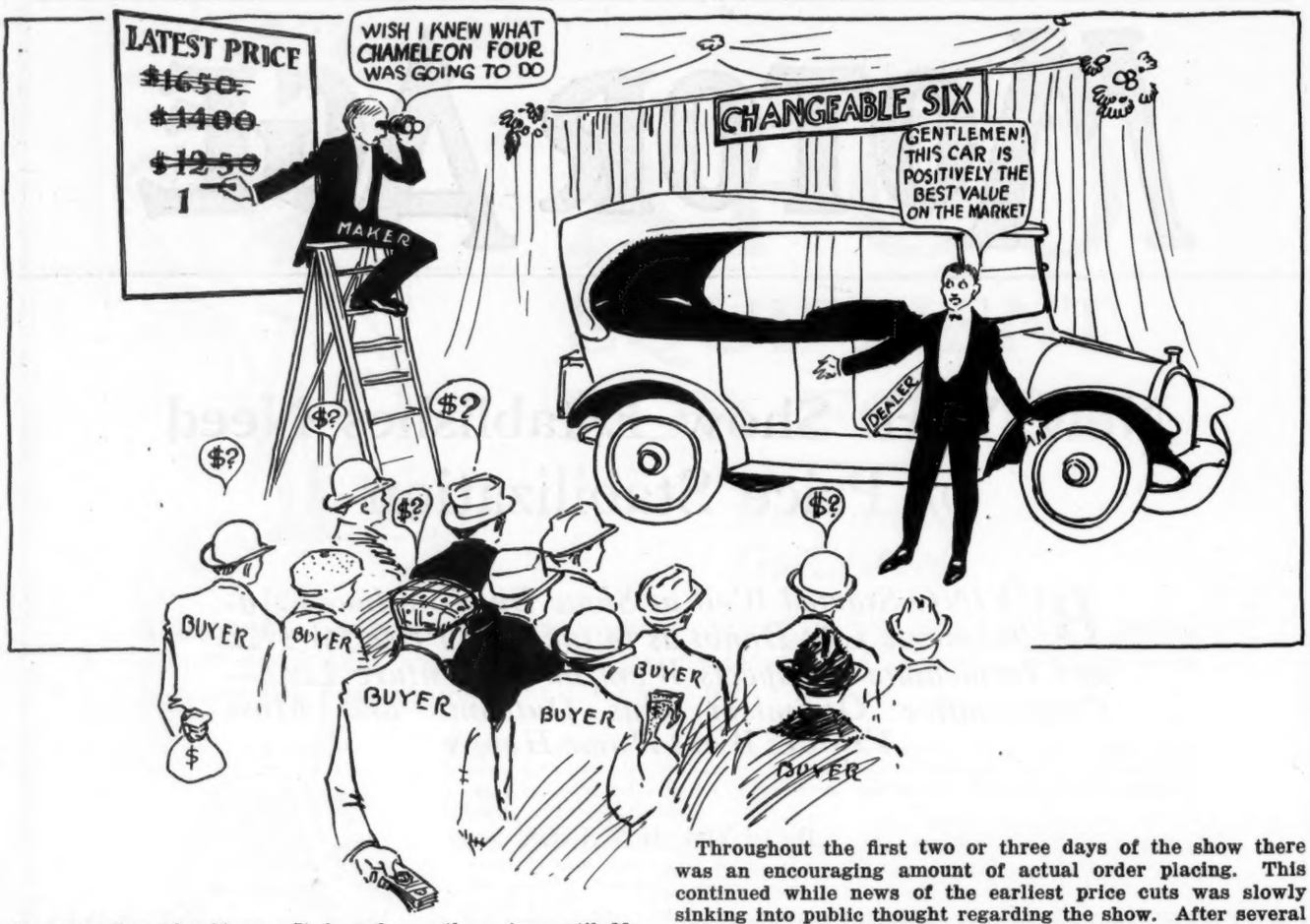
The used car problem was the first topic of conversation and factory men were as interested in these discussions as the dealers whose money is tied up in these cars.

Learning Who the Real Boss Is

THERE were those present who were somewhat disappointed to learn that Mr. Customer is not yet entirely accepted as boss of this industry and that there remains a touch of factory arrogance, but even these people are glad to admit that Mr. Customer had been advanced from the position of a mere pedestrian who could get in a car—or purchase one when some factory official deigned to recognize him—to the position that may be likened to traffic officer.

There is not the slightest question but that most of the factory men present were interested in what was said about their car at the booth. These same men did not in all cases, appear to get the idea that they could manufacture only as Mr. Customer said the word, but they appeared to recognize Mr. Customer to the extent that they wanted him to point out

Mr. Buyer: It's a Peach of a Car, but What's the Price?



the way they should go. It is only another step until Mr. Customer will be recognized as boss.

The most disinterested students of the industry were expressing the opinion that 1922 production and sales would be below those of 1921 and there is little disposition on the part of any one to dispute this conclusion. Some went so far as to say that twenty firms would make practically all of the cars that would be sold this year, but these persons probably are bidding goodbye to some manufacturers too soon. There was a very strong feeling, however, that the readjustments of 1922 would be greater than during 1921, and that more cars would be orphaned in the year to come than in the year that has past.

Dealers Request Price Stabilization

THE one great request of the dealer—who was much less humble than in previous years—was that all of the price adjustments be worked out by the time of Chicago show. The manufacturers agree with this in theory, but a sales expediency will bring out many things and late price adjustments may be one of them. But the manufacturer has been plentifully warned that continued price adjustments will do even the car on which the price is lowered mighty little good, and will do a great harm to the industry.

Of course, price adjustments continue all week. The total of 18 on the first day was raised to 29 and counting the 20 in the two previous weeks made a total of 49.

As compared with some of the larger dealer shows, New York never has been a strong selling show. It has served more to introduce the season's cars, both to the trade and to the public, and to give the show season around the country a flying start. However, there have always been some sales, and there are some this year, but the big harvest of the show is in deferred business. How long this business will be deferred depends entirely on the ability of the industry to convince the public that prices have been stabilized.

Throughout the first two or three days of the show there was an encouraging amount of actual order placing. This continued while news of the earliest price cuts was slowly sinking into public thought regarding the show. After several days of full page, half-page and quarter-page announcements in all the newspapers all featuring prices, the public began to see what was happening and prospective buyers, though evidently in the market for cars, became decidedly wary and signed contracts were few and far between. **The only thing that will convince them that stabilization is here is stabilization, with prices left alone, so that people who are thinking of buying cars can have time to exercise their sober judgment and come to a realization of the fact that prices, in the average case at least, have gone about as low as the manufacturer can bring them and still do business at a profit.**

There are indications that the price avalanche has spent itself and that quotations on motor cars are going to remain stationary. This is a big note of encouragement in the New York show and for the many shows in large and small cities all over the country which are to follow.

The Dodge Brothers' announcement of a reduced price is retroactive to Jan. 1, but with the new prices withheld from buyers, as well as prospects, until Feb. 1, had a startling effect on the entire show situation. It sent people to the Dodge exhibit in a vain effort to learn what the prices would be, but it did not start them buying cars.

Guessing the Price of the Dodge Brothers

DODGE BROTHERS dealers, who were in town in great numbers from almost all parts of the country, say they did not expect any immediate stimulation of sales, but look for it when the prices become known Feb. 1, and possibly even a few days before. And prospects did not besiege alone the Dodge Brothers' exhibit for price information. They went around the show asking salesmen in other booths if they knew what the price would be, how they would compare with other prices and numerous other questions hatched by fertile imaginations.

Naturally there were all kinds of guesses as to what the new Dodge quotations would be but the public seemed to

have remembered that the last advertised "substantial reduction" amounted to $300 and that another "substantial reduction" from the present price probably would be proportionate. After much guessing the public and rural dealers sort of settled on $775 for the touring car.

The Dodge advertising seemed to form a sort of climax to the public reaction to upwards of half a hundred cuts, and when mid-week came there was noticed a decided slowing up in sales and a decided increase in the "We'll-wait-awhile-and-see-what-happens" attitude of prospective buyers.

Several distributors of well established cars, the prices of which have not been changed recently, or which made their reductions before the show, exhibit confidential figures which indicate that a few lines, at least, were running ahead of last year in actual sales. Some others were doing immediate business on a par with that done at last year's show and there are several whose sales records at the end of the week were ahead of those of any New York show except the dealers' show held in 1919, a few months after the signing of the armistice. On the other hand, several distributors frankly stated that the annual show business was considerably below last year's record.

But along the line of price importance, here is an interesting incident:

There was one car in the show that had a new model priced some $60 higher than the old one. The New York dealer who was taking the orders given at the show reported that he had sold a number of the older cars and none of the new ones. Mr. Customer, in this case, was giving notice that price to him was vastly more important than the date of the model.

And right here it may be injected that Mr. Customer appears to take the automobile as a transportation unit as it stands and that he is not greatly interested in the exact date of the design and that as far as transportation goes, he is not inclined to quarrel about details. He presumes of course that the carbureter will function. Mr. Customer apparently does not understand why so much fuss should be made about a new model that looks just like the old one. In other words, Mr. Customer is not very discriminating until he has been hurt by his purchase.

The New Model From the Social Angle

BUT the social side is quite another affair. A new model that greatly changes the appearance is quite important. Here is where opinion is expressed pro and con and approval means something, especially when Mrs. Customer is a part of the discussion, and you cannot visit an automobile show without learning that she is an important factor and that her social view of the situation is very often of more importance than Mr. Customer's mechanical study of the new model.

A good deal of understanding has soaked home with observing factory representatives as to this attitude. They have found that something besides the declaration that they have a new car and several reams of publicity are necessary to create an interest on the part of the public.

In the automotive equipment section of the show the prevailing spirit was in sharp contrast with the uneasiness evident on the passenger car floors. Automobile equipment prices, even if a few of them have dropped, do not get the wide publicity that attends a reduction in the passenger car field and the equipment manufacturers went on about their business, which was decidedly encouraging, throughout the entire week.

A manufacturers' sales agent who distributed several lines made an interesting summary of the situation when he said that while motor car owners and jobbers showed no more interest this year than in former years in the accessory exhibits, dealers and garagemen, who were present in great numbers, made the most thorough canvass of the equipment section in the history of the New York show.

He expected this condition to be productive of results because the growth of the automotive equipment industry must depend not upon the inclination of car owners to buy, nor the urging of jobbers to sell, but on actual selling of them by the retail trade.

It remains a fact, however, that the aisles in the automotive equipment sections were pretty well thronged throughout the week and thousands of car owners saw things that interested them, all of which helps the manufacturer, the jobber and the dealer in the task of promoting sales.

Manufacturers Watching Each Other

THERE has been, of course, the usual sidelines to this great annual gathering of the industry. The meetings of the National Automobile Chamber of Commerce attracted many manufacturers but no startling announcements were made on behalf of the chamber. The manufacturers apparently were more interested in talking to and of each other rather than making moves on behalf of the chamber.

It was indicative of a good intent that the meeting of export managers was very well attended and that close attention was paid to the entire program. Also that the program was more definitely constructive than at any previous meeting of this sort.

The N. A. C. C. dinner was the usual success. The speakers were Secretary of Navy Denby and Irwin Cobb. Secretary Denby talked as one automobile man to another on a subject about which he knew more than his fellows. He gave them a very intimate and human view of the operations of the navy and his statement that "doing away with a navy would be as foolish as discontinuing insurance on a manufacturing plant" was warmly applauded. Cobb was, of course, funny, but he also brought in a striking way to the manufacturers some of the outside viewpoints on this industry. President Clifton presided and those decorated for entertaining misdeeds of the previous year were: George M. Graham, Walter Marmon, C. H. Wills, Edward S. Jordan, A. R. Erskin and David S. Ludlum.

The S. A. E. Meeting

THE annual meeting of the Society of Automotive Engineers was featured by the visit of Harry R. Ricardo, the English engine designer, who was a guest of honor at all of the dinners of the week and who addressed a session of the society. There were sessions devoted to lubrication, transport, materials and bodies. The attendance of engineers at these sessions was extremely gratifying, the conclusion being that the number of men who had time to attend balanced the non-attendance of those kept home by financial reasons. The transport session, in which roads and truck uses are considered as co-ordinate, was an excellent session and evidence of the serious view this professional society is taking of this important qeustion.

The S. A. E. dinner was the usual annual success. David Beecroft, the retiring president of the society, outlined the great accomplishments of the society and pointed to the serious work ahead. The incoming president, B. B. Bachman, engineer of the Autocar Co., outlined his plan and advocated an open door for the young engineer and he said that the society would guard against the present tendency of over-organization.

The chief speaker of the evening was Arthur Richmond Marsh, editor of the Economic World, who was to tell those present how they would know when the corner was turned in a business way. He said that this would come about when the entire world again settled down to work and produced goods, because goods could be bought only with goods and that money and credit were merely handy devices to promote convenience of exchange. He held up Germany as the country that had "gone back to work" and despite the low rate of exchange was the best customer of the raw materials markets of the world.

The individual hit of the evening was Charles Kettering, the toastmaster, who said that he never was so impressed with the importance of Henry Ford as when he attended the testimonial dinners to him. This came about, he said, by looking over these annual gatherings and noting the great amount of talent needed to sell "38 per cent of the automobiles." Kettering also paraphrased the "grasshopper" song by making it read

"The gashopper cuts the price under the gashopper just above
(*Repeat three times*)
"But they are only playing poker and all are going broker."

(*Continued on page* 18)

Summing Up the New York Show

Some Reasons Why the 1922 Car Is the Best Ever Built

Better Bodies and Chassis Offered the Motoring Public —Upholstery Improved and Many Other Details Go to Make This Year's Cars Best Value for Money

By B. M. IKERT

THE 1922 car is in every respect the best product ever turned out by the automobile makers of this country. It is a better car to look upon and it is better from a performance standpoint. The car is more ruggedly built, although not necessarily heavier. It is more serviceable, that is, accessibility has received more attention than ever before.

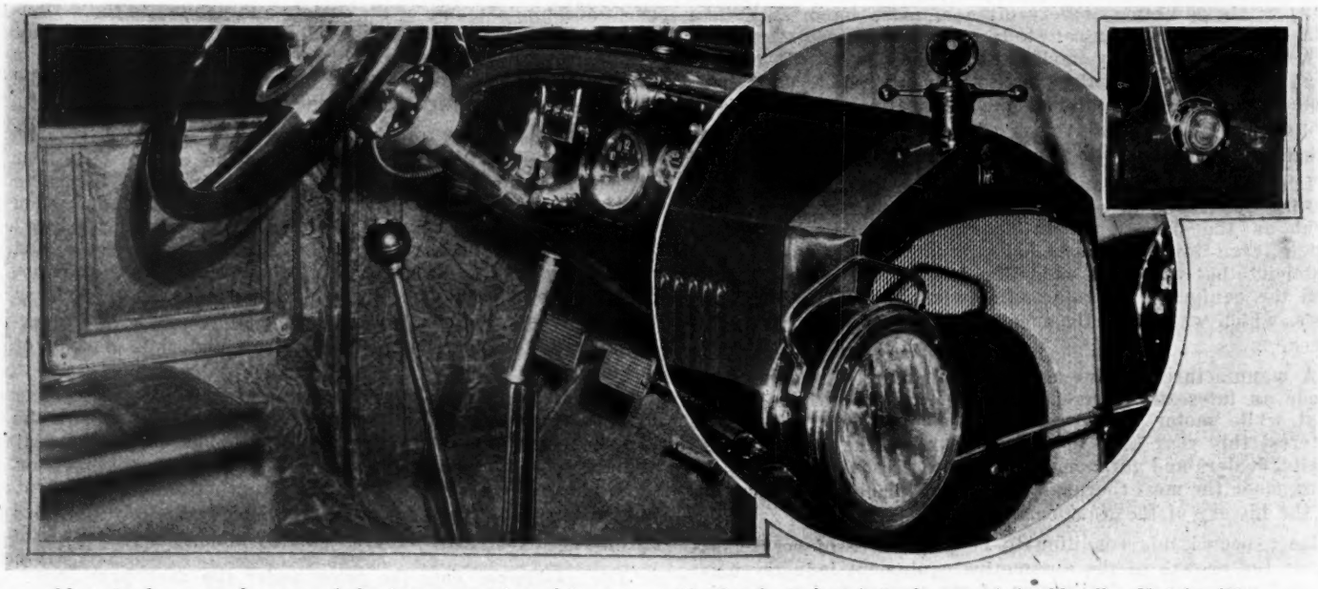
With the above facts in mind it is quite easy for anyone to see that other things being favorable, the 1922 car ought to be the best selling and servicing proposition offered the public.

There is no change of a radical nature in the new cars. The time seems passed for such changes. There has been a steady development from year to year in the chassis and bodies of our cars and with the standardization work of the Society of Automotive Engineers going on steadily it is hardly to be wondered at that the cars of today follow pretty much along the same lines of construction.

THERE are exceptions, of course. For instance, while practically all cars use engines of the internal combustion type, it cannot be said that this is the approved type because there is the steam car, which has made good for many years, and there is the electric vehicle, which long has proven its worth, particularly in the large cities.

IT SO happens that the bulk of manufacture has been on the gasoline driven car and in speaking of the better car for 1922 naturally concentration will be on this type of vehicle.

At the outset we stated that the 1922 car is a better car to look upon. This is true of practically all makes of cars, although there are a few so-called sport jobs which violate to some extent the ethics of good body design. In such instances there generally are too many angles to the body lines which do not register well with the curved surfaces of the body and fenders.



Here is shown a close-up of the instrument board layout on the Goodspeed and the lamps of the Handley-Knight. There is a tendency for makers to fit side lights and in most cases they match up with the headlights, as shown. On the Goodspeed an all-wood wheel is used, which is becoming popular on other cars also

But in the main the bodies have pleasing lines. In nearly every case where improvements have been made in the body lines it has been done by making the radiator higher and thereby giving the line from the top of the radiator to the cowl a more nearly horizontal direction. Naturally this added height to the hood gives the front of the car a more massive appearance and also suggests an abundance of power.

Lower Tops on New Models

The car for 1922 has a lower top and in many instances this has been emphasized by bringing the rear body panel up quite high and making the rear curtain relatively more shallow. Still further emphasis is given by making the rear curtain light rather long but not very high.

There is a more graceful sweep to the fenders on the 1922 car. Where a maker last year fitted rear fenders extending down on a line with the hubs of the wheels, he is fitting them this year so they extend considerably below the center of the wheels or hub line. This also helps to give the car a lower appearance.

The 1922 car still uses in the majority of cases the conventional running board, although each year we find more makers giving attention to the cast aluminum steps. For example, at the New York show this year there were twenty-seven makers who exhibited cars with aluminum steps in place of running boards.

These steps either constitute regular equipment on these models or are fitted as special equipment. The cars thus shown were Anderson, Noma, Hatfield, King, Roamer, Goodspeed, Rotary, Earl, Columbia, Davis, Stephens, Liberty, National, Kissel, Templar, Maibohm, McFarlan, Crow-Elkhart, Moon, H. C. S., Elcar, Auburn, Cleveland, Chandler, Haynes, Cole and Paige.

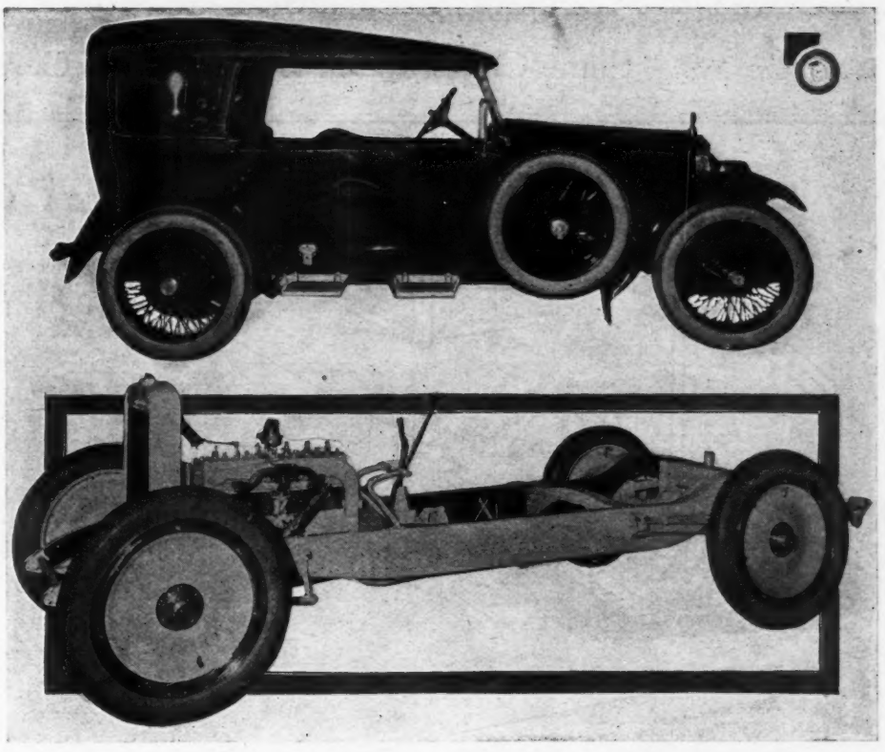
Runningboard vs. Steps

Just what the future of the aluminum step will be seems problematical with many. Some have it that the majority of car owners still prefer the conventional runningboard in view of the fact that so much additional carrying space is provided. Those opposed to the step claim that persons entering and alighting from a car must be more careful in placing their feet.

Where steps are fitted the fender brackets usually are more rigid because advantage cannot be taken of tying the fenders to the running boards. Those who fit steps claim that their cars are less apt to set up squeaks and rattles and also that these cars are more accessible. However, in cars using the Brush type of frame wherein the running board becomes an integral part of the frame and very short fenders are fitted, there is little or no chance for looseness or rattle. Such construction is used in the Marmon, Saxon and in the new Elgin, not yet in production.

Better Upholstering in Evidence

The 1922 car is a better upholstered car. It now is possible for the makers to get better material and they are losing no time in making use of it. Many of the medium priced cars are now using genuine leather, whereas they formerly used imitation leather. The material is thicker and this is especially true of the leather used in the sport model cars. Improvements in body construction has resulted in getting the seats slightly lower in many cars and it has not been done at the sacrifice of comfort.



Above is shown a typical case of where aluminum steps are fitted in place of runningboards. This is the H. C. S. The other view is of the Rickenbacker chassis which is noted for its clean design and accessibility

As an example of this the National might be mentioned. Here the body sills instead of resting on the side rails of the car frame rest upon brackets riveted to the side rails and placed low enough so that the sills come about flush with the top of the car frame. This brings the floor boards much lower and permits of a lower seating arrangement, whereby the occupants sit in the seats and not on them.

Better Finish This Year

Inspection of the body hardware, particularly as to door hinges and latches shows that the makers are using a better grade of material and larger parts. The result is a better door action and better fit when it is closed. A point which might be questioned on some cars is the tendency to use too strong springs on the door catches. Such doors cannot be closed unless slammed exceptionally hard. It takes but slight spring pressure to keep a catch in place. This is observed on the closed models in many instances.

With the ability to again get pigments in this country, there naturally follows a better finishing of the cars. The colors are more lasting and with production figures not running as high as in the halcyon days of 1919, makers have more opportunity to give their cars a better finish.

The 1922 car is better equipped. Many dealers find it difficult enough to part a man from his money for a car, but it becomes still more difficult to have to induce him to spend anywhere from $15 to $200 more to rig up the car with the many little fitments the market now affords for the convenience of car owners.

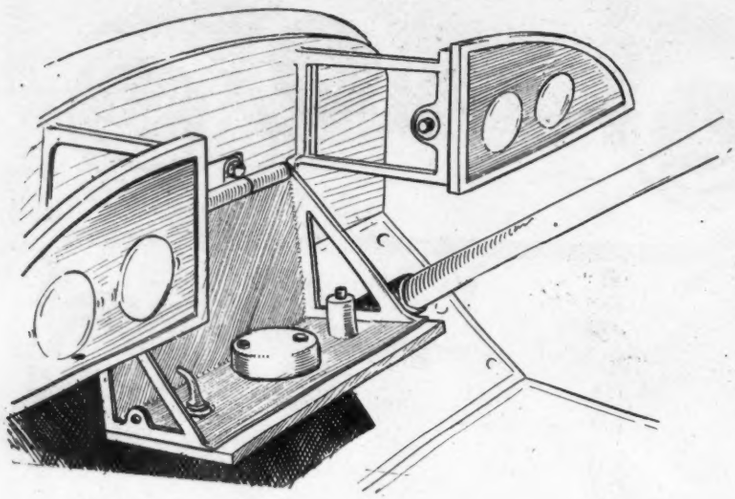
Spring Replacement Facilitated

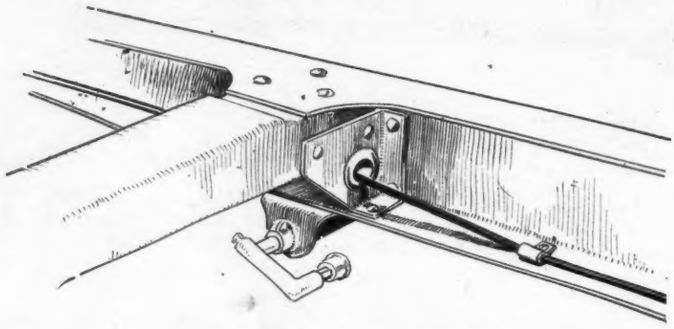
The car makers evidently have taken the hint and in many instances it is not uncommon for the car to be fitted out with such accessories as windshield wings, bumpers, shock absorbers, motometer, gasoline gages on the dash, aluminum plates on the running board, spotlights, etc. In some instances the car is provided with brackets or mountings to facilitate adding accessories. On the Goodspeed, for instance, the frame horn castings have an integral cast bracket for attaching the bumper. This is illustrated on these pages.

Aside from this fact there is a distinct advantage from a service standpoint in the underslinging of the rear springs. In case a spring has to be replaced it becomes quite an easy matter to simply drop it after the shackle bolts have been removed and the nuts removed from the clips. With the spring above the axle the former often has to be shifted around considerably before it can be removed.

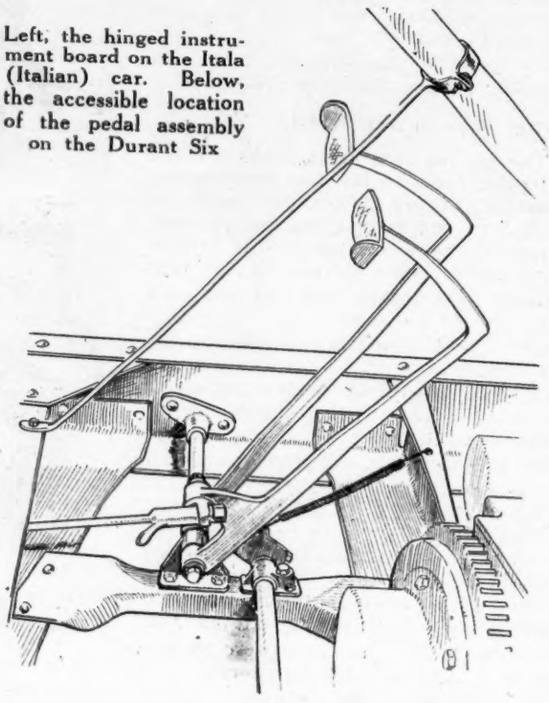
With the use of semi-elliptic springs, especially where Hotchkiss drive is used, some means must be provided for keep-

Some Construction Details of the Cars for 1922

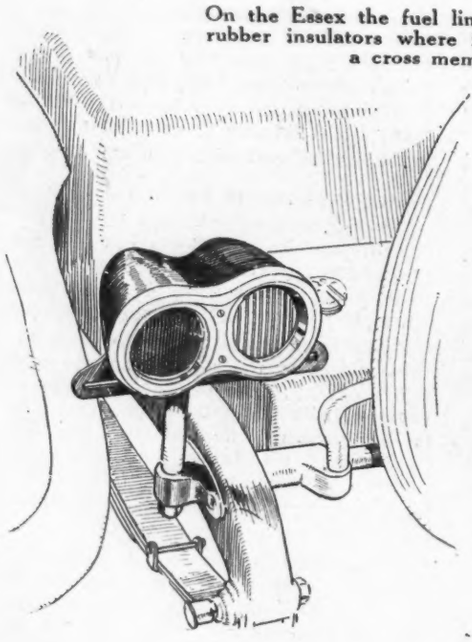


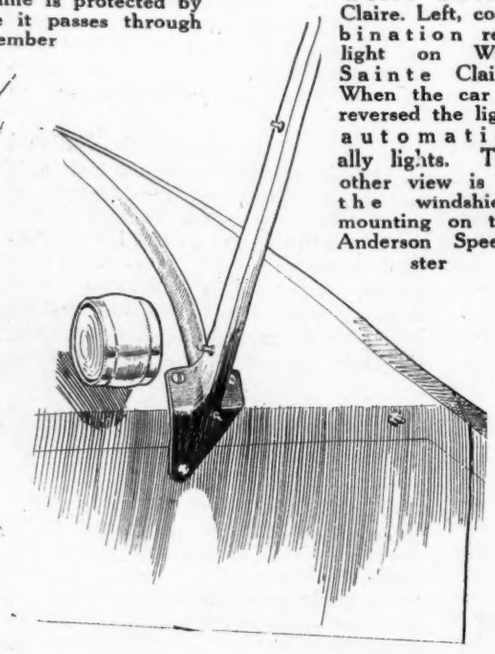


Left, the hinged instrument board on the Itala (Italian) car. Below, the accessible location of the pedal assembly on the Durant Six

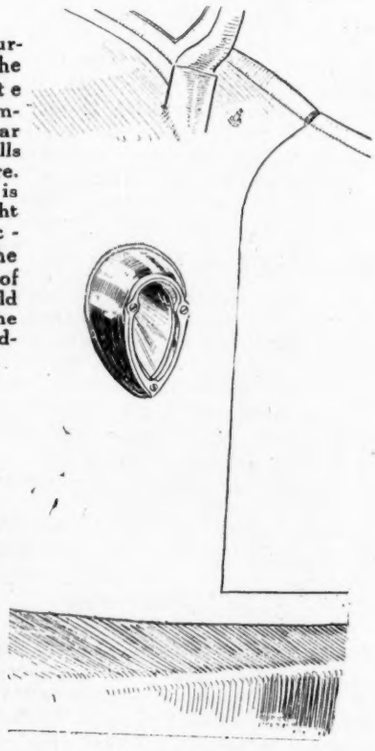


On the Essex the fuel line is protected by rubber insulators where it passes through a cross member





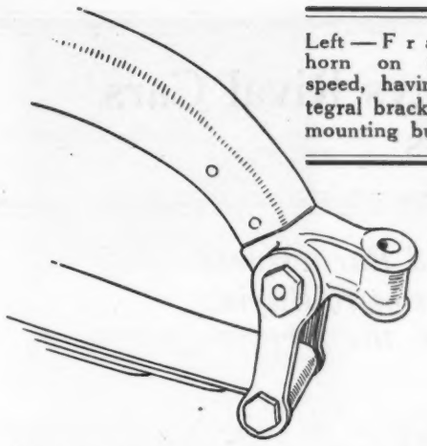
Right, the courtesy light on the Wills Sainte Claire. Left, combination rear light on Wills Sainte Claire. When the car is reversed the light automatically lights. The other view is of the windshield mounting on the Anderson Speedster



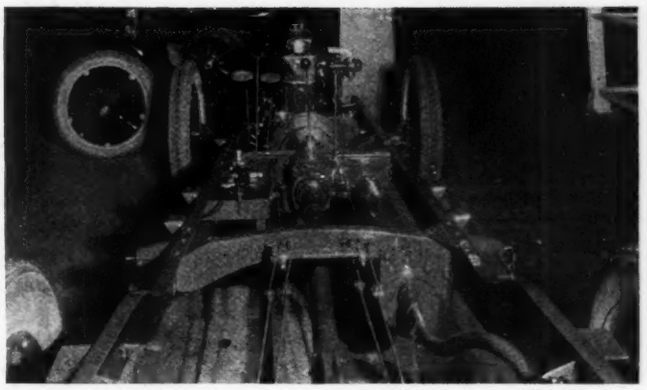
ing the rear axle housing from turning. This generally is done by providing a pad of some sort either for the spring to rest upon, if the latter is mounted on top of the axle housing, or for it to be suspended from in case of underslung construction.

Transmission Brake Becoming Popular

WHILE the vast majority of cars made in this country place both service, and emergency brakes on the rear wheels, considerable headway has been made by the transmission brake. This type of brake has been used on many European cars for some time, but it has been only in the last few years that makers in this country have given it much attention, although Franklin has been an advocate of it for a long time.



Left — Frame horn on Goodspeed, having integral bracket for mounting bumper



Right—Rear view of Durant Six frame, showing how the use is made of muffler as additional stiffening member

Of the cars exhibited at New York this year there were thirteen makers using a transmission brake, although one of these, the Vauxhall, was a European car, thus leaving only twelve American makers. These include Franklin, Lexington, Nash, Liberty, Rickenbacker, Elgin, Mercer, Wescott, Cleveland, Chandler, Maxwell and Earl.

Where the transmission brake is fitted, it usually is done with reference to the service brake, although there are exceptions to this. From a service and maintenance point of view it is better to have the transmission brake operated by the foot pedal. It is more often used and replacement of the lining is a much easier job, than in the case where the brakes are located on the rear wheel drums.

Brake Adjustment Simplified

Adjustment of the transmission brake also is a much easier job, usually requiring only the lifting of the floor boards and turning down on a thumbscrew. The transmission brake does not become so readily covered with mud and water by virtue of its better location and this naturally makes for longer life and easier maintenance. Furthermore, the removal of the brake from the rear wheels to the driveshaft or transmission eliminates many parts like operating rods, springs, clevises, etc. Thus a common source of rattle is done away with, to say nothing of making other parts of the chassis more accessible.

The question often is raised as to why the transmission brake is made so much smaller than the rear wheel brake. The answer is that owing to the gears in the rear axle it is possible to make the brake smaller because the braking effort is multiplied through the gears, that is, through the reduction gears. If a car were geared 1 to 1, then it would be necessary to make the brake very much larger. But with cars geared as they are, less braking effort is required with the transmission type of brake.

Rear Springs Practically All Underslung

IN nearly every case where a semi-elliptic rear spring is used it is underslung from the axle. Of the cars exhibited at the New York show sixty-five makes were so fitted. Eight makes of cars using semi-elliptic rear springs have them fitted above the axle housing. Seven used cantilevers, three full elliptic, three transverse double semi-elliptics, two quarter elliptic and two platform types.

The cars with overslung semi-elliptics are Rickenbacker, Durant, Case, Locomobile, Stutz, H. C. S., Dodge, Vauxhall (English).

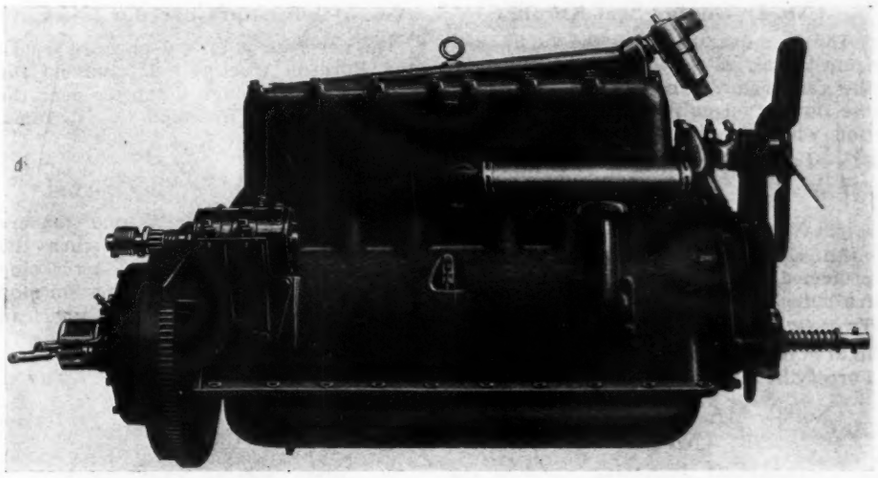
Those using cantilevers are Columbia, Stearns, Mitchell, King, Dort, Roamer and Buick.

Franklin, Holmes and Stanley use full elliptic springs. The Brush type of spring suspension incorporating double transverse semi-elliptic springs is used by Marmon, Elgin and Saxon. Quarter elliptics are used by Chevrolet and Overland. The platform spring in which two conveniently placed semi-elliptic springs are used on the rear axle and tied together at the rear by a single semi-elliptic spring is made use of in the Cadillac and Pierce-Arrow.

With the desires to get lower spring suspension cars during the last few years there has been a steady drift towards placing the springs under the axle housing, which naturally gives the frame a lower position.

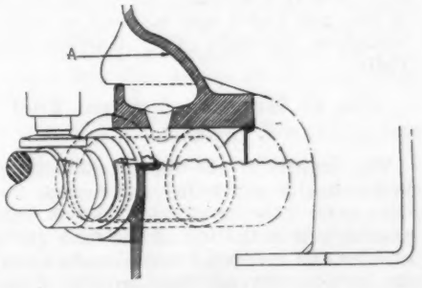
While externally the cars for 1922 are better, the same can be said for them speaking of those things not altogether visible. Take, for instance, the improvements made in the handling of fuel. While this is a lengthy chapter in itself, mention might be made here that there has been a vast amount of attention paid to the proper vaporization of the fuel on the new cars.

All of them have some sort of "hot-spotting" arrangement whereby the heavier portions of fuel are converted into a gas, so essential to smooth running and to the preservation of the oil in the crankcase. To the car owner this means much and certainly it will have a far reaching effect on service.



Additional Features of New Mitchell Engine

THE above illustration shows the accessible positions of the starting motor, oil filler pipe, oil gage, water pump and thermostat on the new Mitchell engine. Note also how the front end of the crankcase has been brought up very high on the cylinder to keep No. 1 cylinder at just the right temperature. The eye bolt in the head by which the engine can be lifted has been a Mitchell feature for some time. The sketch shows the oil pockets for oiling the camshaft bearings. A is a baffle for catching the oil.



Accessories and Equipment Displays Rival Cars in Interest to Visitors

Dealers Study New Devices with Marked Earnestness with View to Adding Them to Their Lines or to Buying Time and Labor-Saving Equipment for the Service Department

A SURPRISING feature of the New York show was the close interest and study given to the accessory and equipment sections. From the opening of the doors to the show to the final closing on Saturday night, the aisles were thronged and the crowd moved very slowly, indicating that many of the sightseers were giving more than a passing glimpse to the exhibits.

THERE was not in this section the controversy and anxiety as to price. In the main, the visitor appeared to have the accessory in mind only as to whether it was what he wanted, and in many cases orders were left with the man in charge of the exhibit for shipments to the consumer, these of course being accepted at the booth as a representative of the jobber and dealer through which routine the orders would go to be properly shipped.

Men at Displays Kept Busy

Men in charge of the equipment displays said that never before had there been so much work for them at a New York show. Hundreds of dealers attended the show with a view of picking up sidelines. Dealers who had sold only motor cars and supplied the more or less superficial service for them exhibited an interest in the more serious lines of merchandise, service equipment and the like.

IN all, the accessory and equipment exhibitors, both in the show proper and the shows in other locations, were well pleased with results.

Overflow Show at Hotel Imperial

The Hotel Imperial equipment show was held under the auspices of the National Retail Merchants' and Buyers' Assn. There were 132 represented at the show. A rather unusual method of space allotment was made.

There was no charge for space but the association received 7½ per cent on all orders taken at the show; 2½ per cent of the gross amount was rebated to any firms buying their material or parts at the show. This left 5 per cent of the gross amount clear for the association.

Brief Descriptions and Illustrations, When Indicated, of Show Equipment and Accessories

(No. 1) Double Seal Kerofier

The Kerofier separates the liquid fuel from the air after it has passed through the carbureter. The heat is applied to the liquid fuel only and not to that portion which is already vaporized. Price $25.—Double Seal Ring Co., 2335 Michigan Ave., Chicago.

(No. 2) Excellight (No Cut)

An electric hand lantern with wire protected glass. Furnished with two extra bulbs and adjustable focusing device. Two styles, prices $2 and $13.—Excellight Co., National Marine Lamp Co., Forestville, Conn.

(No. 3) MA Balancing Machine (No Cut)

A crankshaft balancing machine in which the shaft is suspended on rollers and revolved by means of a belt. A dial gage indicates whether the crankshaft is in line and which way it is out of line.—Vibration Specialty Co., Harrisonville, Phila.

(No. 4) Kingston Vacuum Fuel System

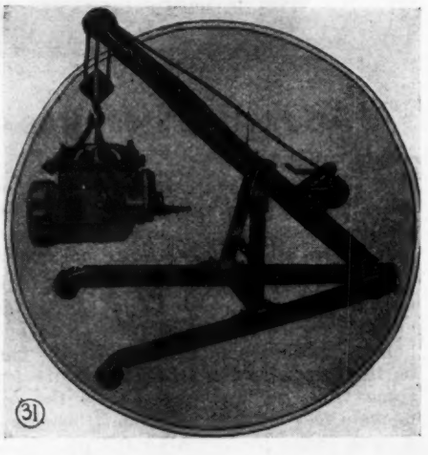
The tank is of one valve construction, hydraulically controlled and having two chambers. The inlet and vacuum connection are at the top of the tank and a bleeder and the outlet connections are at the bottom.—Byrne, Kingston Co., Kokomo, Ind.

(No. 5) Kingston Governor (No Cut)

The governor is for use on Ford trucks and Fordson tractors. It controls the engine speed through a shutter near the throttle.—Byrne, Kingston Co., Kokomo. Ind.

(No. 6) Yankee Stop Signal

This is attached to the rear fenders and signals a red warning when the brake is applied. Model A has the stop signal only, model B a combination stop signal and parking lamp.—American Auto Lamp Co., Inc., New York City.



(No. 31)—Buter Kwik-Lift

(No. 7) Michon Accelerator

An accelerator for Fords. It has a long graduated feed foot pedal so designed that the greatest motion is given on the earliest depression of the foot. Price $2.50.—Michon Mfg. Co., Toledo, O.

(No. 8) Herz Timer (No Cut)

A timer for Fords that has a pressed contact and does not use rollers, brush, fibre or raceway.—Herz Inc., Fort Morris, New York City.

(No. 9) Bee-Zee Gas Regulator (No Cut)

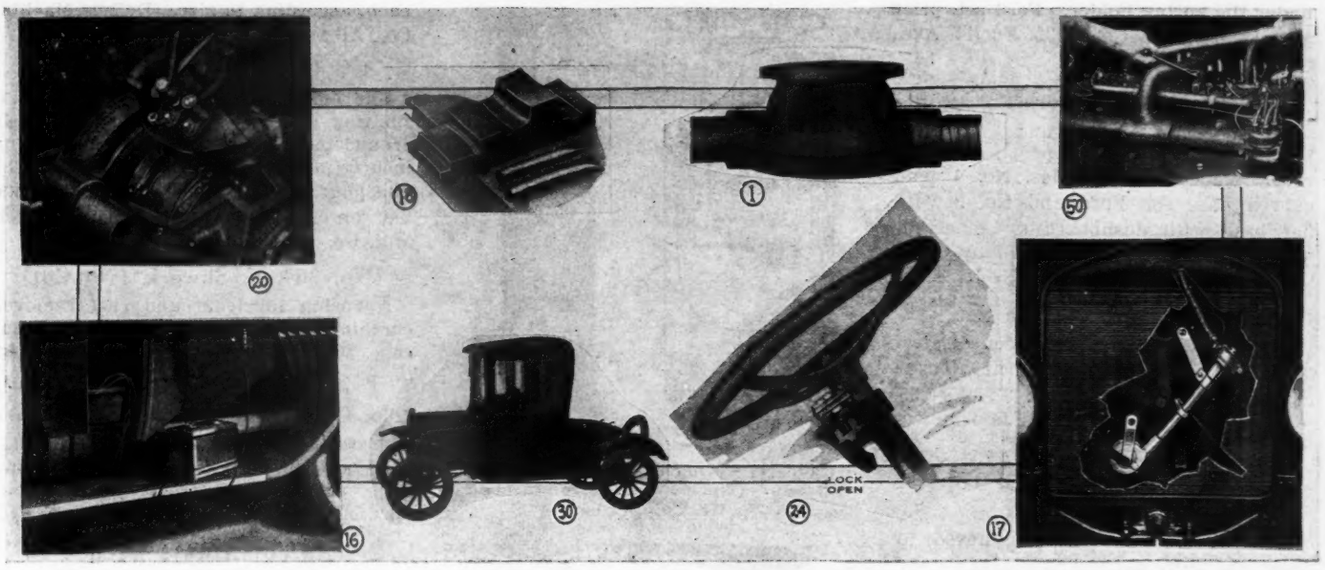
A needle valve regulator attached to the instrument board requiring but fifteen minutes to install. Price $2.25.—B. F. Zimmerman Mfg. Co., 257 George St., New Haven, Conn.

(No. 10) Alta Shock Absorbers

Coil spring absorbers acting between the end of the spring and the spring support and replacing the ordinary shackle. Made in several models to fit different cars. Price $18 per set of two, front or rear.—Alta Co., 417 Market St., San Francisco, Cal.

(No. 11) Heald Automatic Ring Grinder (No Cut)

This is known as style No. 25 and is for grinding the sides of piston rings, ball bearings, roller bearings, collars, gears, etc. A demagnetizing device removes the magnetism from the work be-



(No. 20)—Hudco Ford Transmission Cover. (No. 18)—Weaver Rim Anvil. (No. 1)—Double Seal Kerofier. (No. 50)—Smitheco Spark Plug Wrench. (No. 16)—King Battery Charger. (No. 24)—Reliable Lock. (No. 17)—Accurate Timing System and Ignition Block for Fords. (No. 30)—Kensington Closed Top for Fords

fore it is taken out of the machine.—Heald Machine Co., Worcester, Mass.

(No. 12) Anderson Gasometer (No Cut)

A dash gasoline gage indicating the quantity in the tank in gallons. Operates with gravity, vacuum systems. Price $21, including installation.—Kollmorgen Optical Corp., Brooklyn, N. Y.

(No. 13) Stewart Stop Signal (No Cut)

Lights automatically when the foot brake is depressed. The letters are white against a red background. The price $5.—Stewart-Warner Speedometer Corp., Chicago.

(No. 14) Protex Jr. Stop Signal (No Cut)

This is another model smaller than the regular Protex signal. Price $5.—Protex Signal Co., Cleveland.

(No. 15) Mirroscope Parking Light (No Cut)

Made in three models, prices $6.50, $8 and $10.—Alexander Co., New York City.

(No. 16) King Battery Charger

A small model to be attached to the lighting circuit for charging one battery. Price $25. A large model for charging 14 batteries, $180.—King Electric Mfg. Co., Tonawanda, N. Y.

(No. 17) Accurate Timing System and Ignition Block for Fords

The timer is driven by hard helical gears and is extended to the level of the cylinder head. Removing the top part of the cam blocks the ignition. Price $10.—Saistrom Mfg. Co., 6706 South Chicago Ave., Chicago.

(No. 18) Weaver Rim Anvil

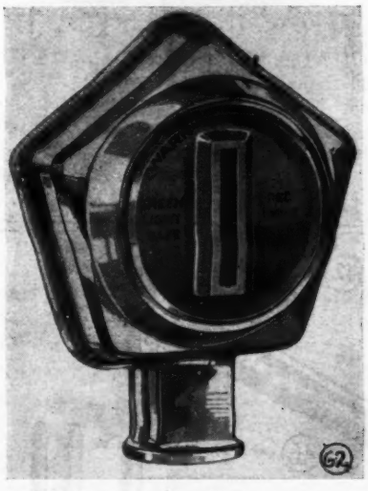
An anvil with proper curves to take out rim kinks, riveting brake bands, etc. The weight is 29 lbs.—Weaver Mfg Co., 2177 South 9th St., Springfield, Ill.

(No. 19) Ash Wire Wheel (No Cut)

A wheel so designed that it can be applied to cars with wood wheel axles without change of the wood wheel tread. The wheel is demountable, the hubs are interchangeable and the hub shell is demountable.—American Car & Foundry Co., 5718 Russell St., Detroit.

(No. 20) Hudco-Ford Transmission Cover

This is a complete transmission cover which replaces the standard cover. The pedals are supported in an extended section which is removable without unbolting the crankcase section. This makes it possible to lift out the pedal mechanism and replace the bands. It is claimed that this operation can be done in 20 minutes.—Hudson Motor Specialties Co., S. E. corner Market and 21st Sts., Philadelphia.



(No. 62)—Stewart-Warno-Meter

(No. 21) Kozy Wings (No Cut)

The wings are adjustable for ventilation or protection and are made in different models for different cars. In each case the shape conforms to the line of the windshield cowl.—Midwest Glass Co., Cincinnati, O.

(No. 23) GE Oil Reclamation Outfit (No Cut)

An electrically operated device for removing sludge, fine metal, carbon particles and gasoline from used crankcase oil. The outfit consists of two parts, a tank where the solid matter is precipitated and a heater where the volatile portions are evaporated. The reclaimed oil is drawn off at the bottom.—General Electric Co., Schenectady, N. Y.

(No. 24) Reliable Lock

A keyless combination lock controlling a clamp which surrounds one of the steering wheel spokes. Made of hardened steel and can be operated in the dark by counting the clicks. Price $12.50.—Reliable Lock Corp., 220 Sumner St., Springfield, Mass.

(No. 25) Lance Generator Cutout (No Cut)

Made in two models that will fit all cars, including Fords. The Ford model is attached directly on the generator, using the two screws and terminals which are already there. The standard cutout model will fit generator or dash mountings. Price $2.50.—Lance Mfg. Co., 45 Center St., New York City.

(No. 26) Lance Cell Connector Molds

Accurately machined to produce a clean casting. Made in seven sizes with cast connectors for batteries with from five to 19 plates. The connectors have double tapers. Price per mold complete with handle, $7. Set of five molds working against a master plate, $18.50.—Lance Mfg. Co., 45 Center St., New York City.

(No. 27) Dual Valve Grinding Set

The set consists of two pieces, a combination valve grinder and valve lifter and a set of four spring holders. The engine is turned until one of the valves is lifted. The prying end of the lifter is inserted under the valve head, the valve pried up and the holder placed

under the spring holder. Ford set, price $2. Dual Valve Co., 2432 Euclid Ave., Cleveland, O.

(No. 28) Tiffany Generator Cutout

Fitted with cover and mounting bracket for replacement purposes on all cars. Made in two styles, No. 1 with curved base for Ford and No. 2 with flat base with dashboard or generator mounting. Price $1.50.—Tiffany Mfg. Co., 50 Spring St., Newark, N. J.

(No. 29) HL Wrench Set

A set of eight case hardened steel sockets in a steel box, these being locked in place with the L handle. Price $1.35. —J. R. Granger Sales Corp., Jamestown, N. Y.

(No. 30) Kensington Closed Top for Fords

The glass sides can be removed to make an open car. Price $112.50 for touring car type, $85 for roadster type.—Monroe Body Co., Ludington, Mich.

(No. 31) Buter Kwik-Lift

This is a combination portable wrecking crane which can be used in the shop or attached to a tow car. Price complete with service car attaching plate, special double reduction hoist, etc., $110. Wrecking crane only, $75.—Butler Kwik-Lift Co., Inc., 849 Flatbush Ave., Brooklyn.

(No. 32) Bertlock (No Cut)

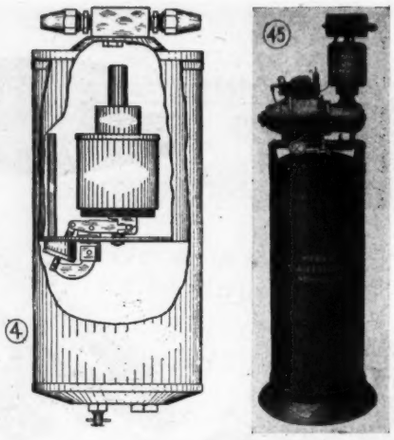
A rigid wheel lock allowing the front wheels to be locked in three positions. Price $15 installed.—Auto Safety Device Co., Inc., 19 Hill St., Paterson, N. J.

(No. 33) G. M. Thermuretor for Fords

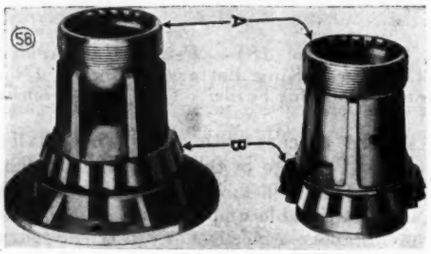
A heating appliance to introduce exhaust heated air at a point between the carburetor and intake manifold. Price $5.—Continuous Machine Works, Garwood, N. J.

(No. 34) DuBois Piston Rings (No Cut)

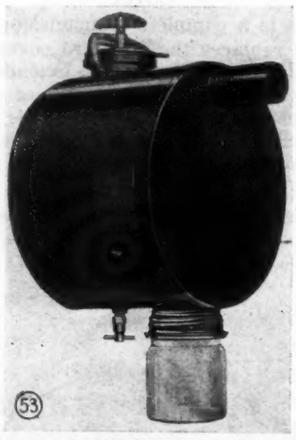
The purpose of the ring is to prevent leak of oil and is placed in the lower groove of the piston. Prices $1, $1.60 each, according to size. DuBois Machine Co., Albany, N. Y.



(No. 4)—Kingston Vacuum Fuel System. (No. 45)—Spohrer Electric Air Compressor



(No. 58)—New Type MS4½ Wire Wheel



(No. 53)—Stewart Air Washer

(No. 35) Bell Timer

The contacts are imbedded in the insulating material and the brush travels around in a single plane. A steel spring insures uniform pressure contact. The phosphore bronze contact shoe remains flat on the raceway. Price $3.—Bell Mfg. Co., 11 Elkins St., Boston 27.

(No. 36) No-Skweek (No Cut)

A spring lubricant and rust remover containing graphite. Price $1 per pint can, $6 per gallon can.—Speyer Mfg. Corp., 55 Hope St., Brooklyn.

(No. 37) Malco Windshield Cleaner

Fastens to the top or side of the windshield and has a double rubber strip and wipes twice at one stroke.—B. I. Malouf Co., Salt Lake City, Ntah.

(No. 38) Always Wrench

The quick acting adjustable type wrench made in size from 3/16 to 1¾. Price $1.—American Valve Tool Co., 354 West 50th St., New York City.

(No. 39) Johnston Quick Demountable Rims (No Cut)

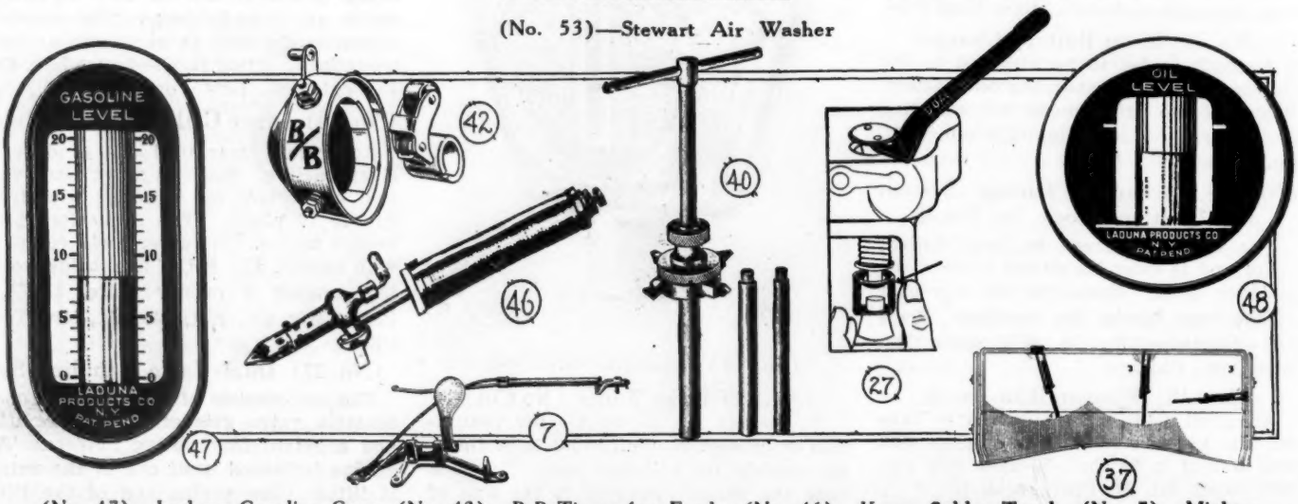
The rim is hinged and is applied to the felloe by a crank actuated rachet operated and locked by two bolt heads. The ratchet drives the rim onto wedges on the felloe. It can be used with either wood or disc wheels.—Mohawk Wheel & Rim Co., 787 Sixth Ave., New York City.

(No. 40) American Adjustable Valve Seating Tool

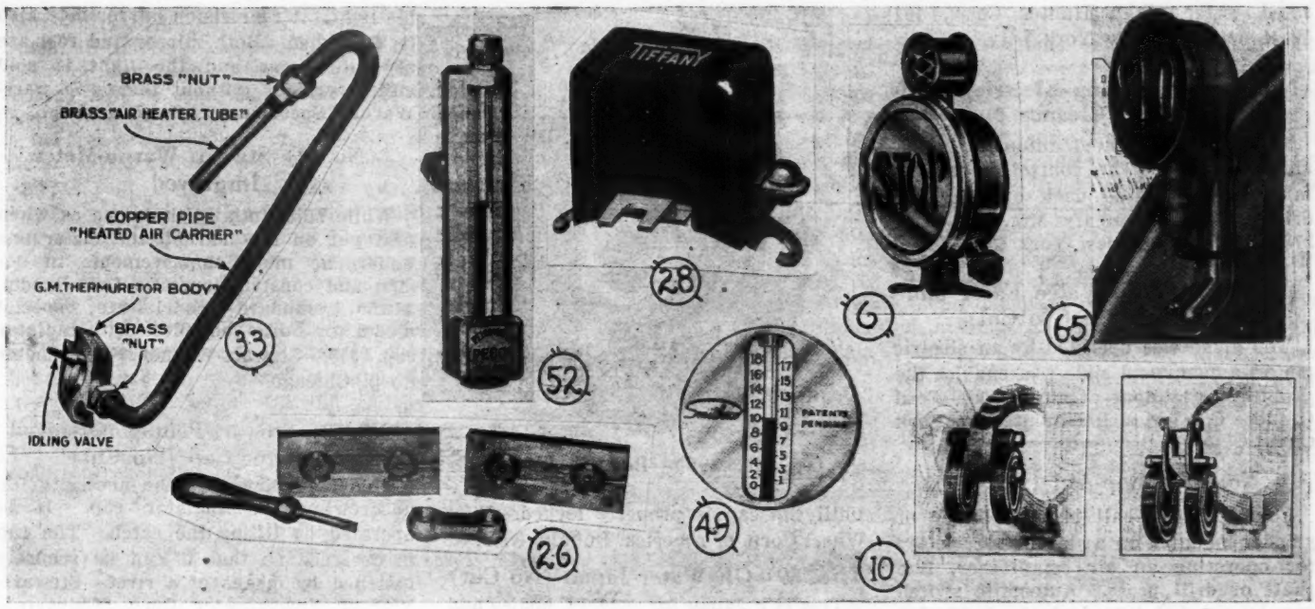
The boring tools are simultaneously adjustable to any diameter within the range of the tool. No. 1 sizes, 1 to 1⅞; No. 2, 1⅞ to 3-in. Price $6 each.—American Valve Tool Mfg. Co., 354 West 50th St., New York City.

(No. 41) Casey Windshield Wiper (No Cut)

Operates by a vacuum motor connected with the intake manifold. A thumb screw allows operation at any desired speed. Price $7.50.—Casey-Hudson Co., 361 East Ohio St., Chicago.



(No. 47)—Laduna Gasoline Gage. (No. 42)—B B Timer for Fords. (No. 46)—Karas Solder Torch. (No. 7)—Michon Accelerator. (No. 40)—American Adjustable Valve Seating Tool. (No. 27)—Dual Valve Grinding Set. (No. 48)—Laduna Oil Gage. (No. 37)—Malco Windshield Cleaner



(No. 33)—G. M. Thermuretor for Fords. (No. 52)—Petrometer. (No. 26)—Lance Cell Connector Molds. (No. 28)—Tiffany Generator Cutout. (No. 49)—Smitheco Gasoline Gage. (No. 6)—Yankee Stop Signal. (No. 10)—Alta Shock Absorbers. (No. 65)—Slo-Lite

(No. 42) B B Timers for Fords

Timer has a pressed steel case finished in black enamel with ground and polished segments and a one-piece fibre ring. Price $1.50; rollers 40 cents.—Berg Bros. Mfg. Co., 920 Michigan Blvd., Chicago.

(No. 43) Bulldock Lock (No Cut)

Locks the steering gear with a steel plunger which extends through the steering column. Price $15.—Forshay Bros., 234 West 55th St., New York City.

(No. 44) Mohawk Rectifier

Has a charging rate of 10 amperes. A circuit breaker protects the bulb and the rectifier could charge 15 three-cell batteries. Price $168 and $206, depending on voltage.—Burgon-Rogers Co., Boston, Mass.

(No. 46) Karas Solder Torch

A combination gasoline blow torch and self-heating soldering iron.—Casey-Hudson Co., 361 East Ohio St., Chicago.

(No. 45) Spohrer Electric Air Compressor

Mounted on a base with electric motor and compressor in one unit. Made in 20 models of different sizes and capacities.—H. A. Shunk, Inc., distributor, 437 West 42d St., New York City.

(No. 38) Always Wrench

(N. 29)—H L wrench set

(No 47) Laduna Gasoline Gage

A dashboard gage operated by pressure from the level of oil in the crankcase.—Laduna Products Co., 120 Broadway, New York City.

(No. 48) Laduna Oil Gage

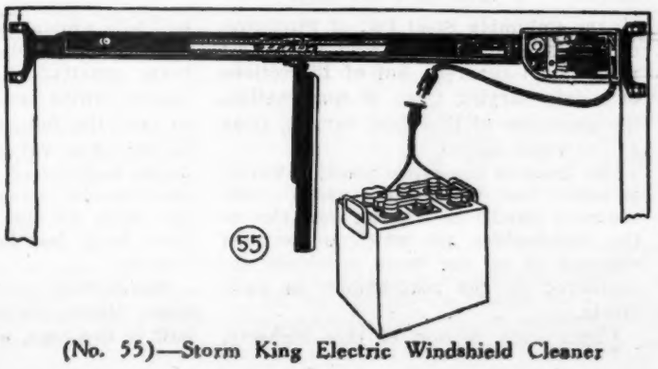
A dashboard indicator operating by pressure from the level of oil in the crankcase.—Laduna Products Co., 120 Broadway, New York City.

(No. 49) Smitheco Gasoline Gage

A dashboard gasoline indicator operated by pressure from the level of gasoline in the tank. Graduated in gallons.—F. L. Smithe Machine Co., Inc., 11th Ave. and 21st St., New York City.

(No. 50) Smitheco Spark Plug Wrench

A socket wrench with universal jointed handle with a ball end. Price $1.—F. L. Smithe Machine Co., Inc., 11th Ave. and 21st St., New York City.



(No. 55)—Storm King Electric Windshield Cleaner

(No. 51) Eveready Automatic Windshield Cleaner (No Cut)

A windshield cleaner operated by vacuum motor connected to the intake manifold. The speed of operation is adjustable. Price $7.50.—Apex Electric Mfg. Co., 1410 West 59th St., Chicago.

(No. 52) Petrometer

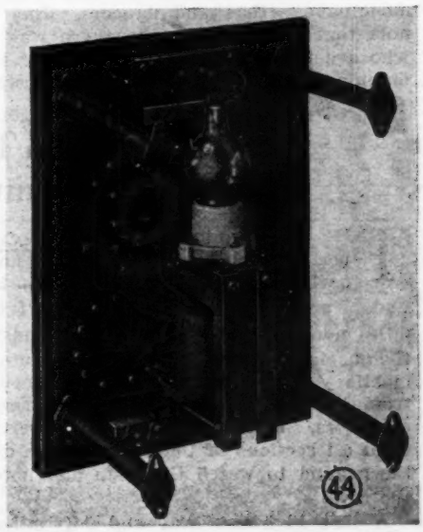
A dashboard gasoline indicator operating by pressure according to the height of liquid in the gasoline tank. Price $5.—Porter Electric Carbureter Co., Knickerbocker Bldg., New York City.

(No. 53) Stewart Air Washer

A device to remove dust from air before it enters the carbureter. The air passes through a fine water spray.—Stewart-Warner Speedometer Corp., Chicago.

(No. 54) Huntco Automatic Battery Filler (No Cut)

Maintains the electrolyte at the correct level by automatically replacing evapo-



(No. 44)—Mohawk Rectifier

rated water.—John Hunter Corp., 161 West 64th St., New York City.

(No. 55) Storm-King Electric Windshield Cleaner

Electrically operated automatic windshield cleaner. The controlling switch is mounted on the dash or near the driver's hand.—Doughty Mfg. Co., Inc., 273 Lafayette St., New York City.

(No. 56) Collins Valve Facer and Tool Grinder (No Cut)

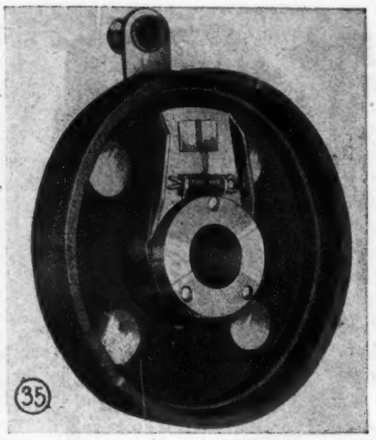
The grinder is operated by an electric motor, a compound slide rest enables the grinding to be done at any angle.—Ford C. Close Co., Inc., 2 Rector St., New York City.

(No. 57) Shop-Aid (No Cut)

Consists of a ball bearing buffer or grinder mounted on a stand and a pulley for operating an air compressor, line shaft or drill press. Automatic switch can be furnished if desired.—Price $25 cash and 10 monthly payments of $12 each.—Hobart Bros Co., Troy, O.

(No. 58) New Type MS 4½ Wire Wheel

This is a new type wire wheel which has a positive locking hub cap. It is made with a smooth face hub shell laced into the rim with 72 spokes arranged in triple rows. The tapered corrugations on the inner surface of the hub shell which are held snugly in mesh with similar corrugations on the inner hub, assure a positive drive. The locking hub cap is operated by a special wrench which cannot be removed from the cap until the cap is properly locked.—Wire Wheel Corp. of America, Buffalo, N. Y.



(No. 35)—Bell Timer

(No. 59) GE Water Japan (No Cut)

This is a Japan for fenders, bodies and other metal parts with a water carrier. Strenuous tests fail to make it crack or peel.—General Electric Co., Schenectady, N. Y.

(No. 60) Kase Electric Vaporizer (No Cut)

The vaporizer is placed between the carbureter and the intake manifold, consists of a wire screen, the wires of which are heated by electric current. Price $7.50.—Kase Electric Co., Duluth, Minn.

(No. 61) Stewart-Warner Reel Searchlight (No Cut)

A windshield model which can also be equipped with a reel and used as a trouble light. A rear vision mirror may also be furnished. Both mirror and reel are separate items and the light is sold either with or without them.—Stewart-Warner Speedometer Corp., Chicago.

(No. 62) Stewart-Warno-Meter Improved

While substantially the same as when first put on the market, the meter has undergone many improvements in design and construction. De Luxe model, $12.50; standard model, $10; special model for Fords, complete with radiator cap, $10.—Stewart-Warner Speedometer Corp., Chicago.

(No. 63) Stewart-Pentagon Hinged Radiator Cap (No Cut)

This cap eliminates the necessity for unscrewing the radiator cap. It is operated by lifting the catch. The cap is designed so that it can be securely fastened by means of a rivet.—Stewart-Warner Speedometer Corp., Chicago.

(No. 64) New Clark Axles (No Cut)

Four new axles have been added to the regular line of internal gear models. Two of these are for speed work on light trucks, there is a special road building axle of 2½ tons capacity and a 3½-ton overhead internal gear axle which presents a unique feature in truck axle design. — Clark Equipment Co., Buchanan, Mich.

(No. 65) Slo-Lite

A rear signal with "Slo" which flashes when the foot brake is depressed. Regular type, $5; Ford type, $3.50.—Culver-Stearns Mfg. Co., Worcester, Mass.

New York Show Establishes Need of Price Stabilization

(*Continued from page 9*)

The M. A. M. A. Dinner

THE annual dinner of the Automotive Accessory and Motor Manufacturers' Assn. was the usual brilliant entertainment and social feature. This is one dinner where cares are forgotten and serious speakers give way to vaudeville monologue artists and dancers. But one could not fail to note that in this gathering there was an abundance of men who are taking a more rosy view of the future of the parts manufacturing business and the conversation there was all hopeful. One of the interesting announcements of the week was that the members of the Automotive Electric Assn. had decided to amalgamate with the M. A. M. A. as a special group of the latter association.

There was a long list of dealer meetings held during the week and in most of these there was definite promise of help on the used car problem and in some of these meetings dealer concessions were announced. In one or two there was still a disposition to crack the whip and invariably where this was done there were strong mutterings as the assembly broke up. Dealers who have been attending this show are showing a very strong tendency to assert themselves as a part of the organization.

Testing 13 Types of Highway Construction at Once to Ascertain Best Method of Building and Repairing

THE longest and most expensive experiment in road-building ever undertaken in the United States is under way at Pittsburg, Calif., a few miles northeast of San Francisco, under the auspices of the California State Automobile Assn., with highway engineers from 17 states, nearly a score of army engineers, and road-building experts from all sections of the Pacific slope on the ground to watch the tests and note the results.

A test highway, oval and 1¼ miles in circumference, has been constructed by the Columbia Steel Co., of Pittsburg, Calif. This highway, which is 18 feet wide, is all concrete, **but of 13 sections of widely varying types of construction,** the thickness of the slabs varying from five to eight inches.

The basis of the entire track, however, is adobe, that yellow mud which rivals southern gumbo in offering obstacles to the road-builder, yet which is the most common of all the basic materials encountered by the road-builder in California.

Under each section of this highway, which is announced as costing approximately $50,000, observation tunnels have been constructed, and alongside are ditches which can be filled with water, so that the foundation of the road can be soaked to varying degrees in the different sections of the various materials. Instruments to record flexure caused by the loads on the top of the pavement have been installed in each of these tunnels.

The Federal government has loaned 40 motor trucks ranging from one and one-half to five tons, which are being driven

constantly, night and day, around this track, all loaded to capacity, some in one direction and some in the other. **This driving will be continued until the road has been destroyed.**

Records are being kept of the wear, resistance and endurance of each section, and as soon as a section gives way it will be repaired, so that the most enduring of all the sections may have full share of the wear and tear, the same as the weakest section, and the entire road remain usable until the last unit gives way. **It is estimated that each section will bear the passage of 3000 to 4000 heavily-loaded trucks every day, and the test, in addition to proving the various forms of concrete construction, will demonstrate the best method of repairing concrete roads for heavy traffic.**

In case any section fails to yield to the truck traffic, the war department has agreed to put heavy tractors, motor gun carriages and the new army tractor, weight 2 tons and running at 25 miles an hour, over the road until it gives way under the strain. Close records are being kept, and the result should be a volume of invaluable data to all builders of concrete roads. The surface of the highway has been marked off into six-foot squares, and a separate record of every square, all of which are numbered, is kept, so that the progress of cracks may be recorded, the spreading of small holes ascertained, and all such detailed data kept in complete form.

How the Material Was Selected

Before building this highway, a questionnaire was sent to the highway engineer of each state, asking his views as to what forms of concrete highway construction should be included in the test. Federal engineers also were consulted, and the 13 types of highway were selected for sectional demonstration.

Though the experimental track was constructed, and the main burden of costs borne by the steel company, the road was laid under the complete supervision of engineers from the State Highway Department and from the California State Automobile Association.

The object of the Columbia Steel Co. in making this costly experiment, is the demonstration, as one of the sections, of a reinforced concrete form of highway devised by its engineers. One-quarter and three-eighths inch steel is used in this reinforcing, which makes of the highway virtually one side of a skyscraper, laid on the ground.

Keeping the Dealer's Mailing Lists Accurate by Recording the Names of Buyers and Sellers of Used Cars

WHETHER or not the old popular song, "I Wonder Who's Kissing Her Now?" was the inspiration, the St. Louis Automobile Dealers' Association has worked out a plan to keep its members advised as to who is now—today—driving the used cars sold.

One of the wastes and annoyances of an automobile business is to keep on sending letters soliciting service work to owners who are no longer owners. Many a mail list is cumbered with hundreds of names of men who once owned a Dodge car or an Oldsmobile or a Hudson, who have since sold it or traded it in. These owners continue to receive circular letters from the Dodge or Oldsmobile or Hudson dealer, although they are driving some other make or no car at all.

At the same time the man who bought the used car is on nobody's list. He is a sort of orphan whom nobody knows and he therefore is a valuable prospective or actual customer for the alley repair shop, because the regular establishment having the agency for his make of car is not in touch with him.

Each month, Secretary Robert E. Lee of the St. Louis Automobile Dealers' Association secures from the dealers in that city a list of all the used cars sold by them during the previous month. This list tells the make and style and motor or serial number of the car, from whom it was purchased and to whom it was sold. These lists are then consolidated so that the Dodge dealer receives a list of all Dodge cars sold during the previous month and to whom sold. The Oldsmobile dealer gets the list of Oldsmobiles, the Hudson dealer the list of Hudsons, and so on.

This enables them to take the names of the former owners off their mail list and to add the names of the new owners, so that the mail list is always a live one, representing actual owners who are prospective customers for service and parts and possibly for a new car.

The plan has been in use for nearly two years in St. Louis, and has proven of marked value to the dealers.

PLEASE MAKE THIS REPORT AT ONCE.

IMPORTANT

MEMBER'S NO. 79

ST. LOUIS AUTO MFRS. & DEALERS ASSN.

MONTH OF Dec.

3124 Locust ST.

Make	Car No.	Traded From	Sold To	His Address
Overland	43612	R. FUrlong	E. Jones	1321 8th St.
Maxwell	308809	T. A. Gugerty	J. A. Lee	2918 Palm St.
Dort	23491	Wm. Able	Adam Roth	3503 Park Ave.
Oldsmobile	37-A-5529	Frank Casey	H. Walker	4416 Delmar Ave.
Dodge	451223	Edward Clay	H. Flier	1532 Valley St.
Chevrolet	3-38494	P. Hutchinson	W. T. Hill	3765 Smiley Ave.
Overland	85958	L. M. Finley	Frank Belt	3013 Gravois Av.
Cole	57039	A. Manheimer	M. L. Quinn	4946 Labadie Ave.
Elgin	2810	W. E. Reasor	A. E. Cain	3326 Cambridge
Saxon	90754	E. L. Lettan	R. L. Juda	4222 Delmar Ave.
Paige	10475	J. W. Chapman	J. R. Thomas	911 Bremen St.
Buick	381397	H. D. Harfield	A. V. Burr	5449 Enright Av.
Regal	35519	L. J. Hatfield	R. A. Smith	2801 Tamm Ave.
Cadillac	55-J-863	A. R. Gould	Gus Bowlin	Du Quoin, Ill.

Each dealer sends a record of his used car transactions to the St. Louis Automobile Dealers' Assn. This tells who owned the car before it was traded in and also the new owner—

USED CAR CHANGES.

Used cars as follows have recently changed hands in ST. Louis. Your mailing list can be corrected accordingly.

ST. LOUIS AUTOMOBILE MFRS. & DEALERS' ASSN.,

For
Cadillac Automobile Co.

R. E. Lee, Manager.

MAKE	CAR NO.	SELLER	BUYER	HIS ADDRESS
Cadillac	57 J 863	A. R. Gould	Gus Bowlin	DuQuoin, Ill.
"	A 37084	G. Bowlin	R. Eddleman	5533 Terry St.
"	18393	Edw. Hezel	H. Pelzer	3013 Meremac St.
"	55 J 393	P. C. Compton	James McHenry	1229 Monroe St.
"	A 35784	R. C. Sandberg	E. Truttman	1751 Missouri Ave.
"	57 BB 845	E. Deiterle	A. R. Hoffmann	2107 Russell Ave.
"	57 M 423	H. E. Woodward	P. C. Richards	6943 Arthur Ave.
"	83659	A. F. Gast	E. J. Moon	3387 Eads Ave.
"	96906	Mr. L. Jones	G. G. Sanders	2936 Olive St.

—the St. Louis Automobile Dealers' Assn. then compiles from these records all the information relative to a single make of car and sends it to the dealer representing it. By this method the dealer can keep his mailing lists accurate and solicit only live prospects

New Models and Body and Chassis Refinements for 1922

Pierce-Arrow Bodies Changed

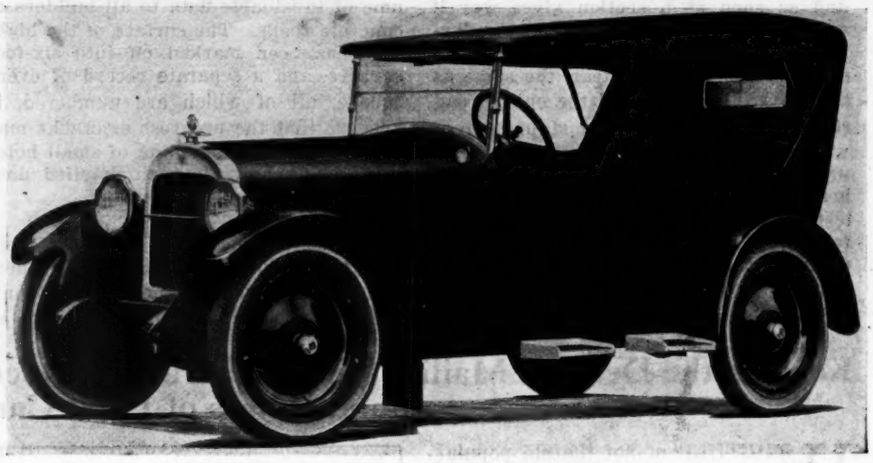
THERE have been no mechanical changes of any note in the Pierce-Arrow line but the bodies, particularly the closed types, have been subjected to detail refinement. On all models, both open and closed, the instrument board has been redesigned with a neater grouping of the instruments. The body pillars in the closed cars have been made thinner so as to give greater visibility..

The cars are lower due to the adoption of the 33 by 5 in. tire in place of the 35 in. The body hardware has been refined and is of a different pattern and on the closed cars the drumming of the top has been eradicated by the adoption of a soft roof in accordance with the general trend in this direction. The four passenger roadster now has removable arms between the seats which has resulted in increasing the seating comfort.

Columbia Six Shooter

COLUMBIA has a new body model known as the Columbia Six Shooter. This is mounted on the regular standard chassis with Continental 7-R engine. The equipment is unusually complete, including windshield wiper, adjustable tonneau windshield, front bumpers with drip shields, sunshade wiper, barrel type headlamps, disk wheels, nickeled radiator shell, nickel hubs and hub clangers, rear view mirrors, etc.

The car will be sold at a net price to dealers and distributors and no retail price is named by the manufacturer. The dealer will therefore set his own retail price, which would include freight, tax and his profit. The net price to dealers has been tentatively set at $1595.



Liberty Has New Bodies

THE LIBERTY chassis has few minor refinements, but the bodies have been altered in many respects. The seats have been altered in height and angle for better comfort, and the upholstery springs have been redistributed and are securely held in place. The side curtains are carried in accessible compartment in the back of the front seat.

The new special touring car has full crown type fenders, aluminum steps with removal rubber mats, and the radiator and lamps are full nickel plated. Equipment includes disk wheels, snubbers, water indicator, courtesy lights, wing radiator cap and nickel plated windshield wiper. Regular touring car is $1295 and the special touring car is $1495.

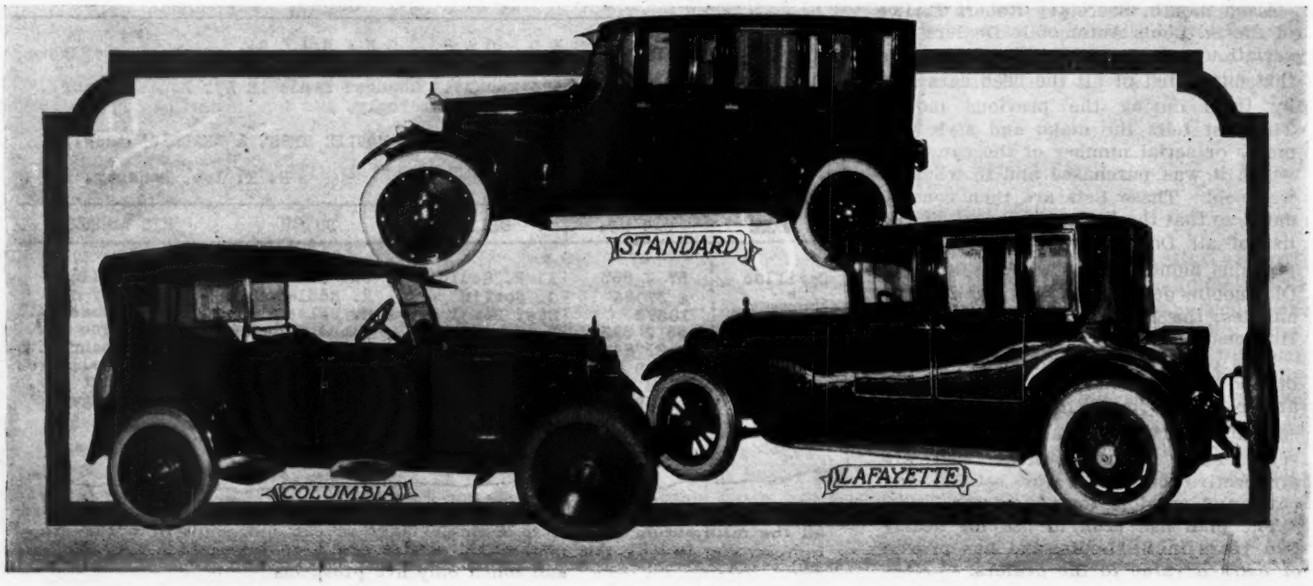
Standard Shows a Sterling Model

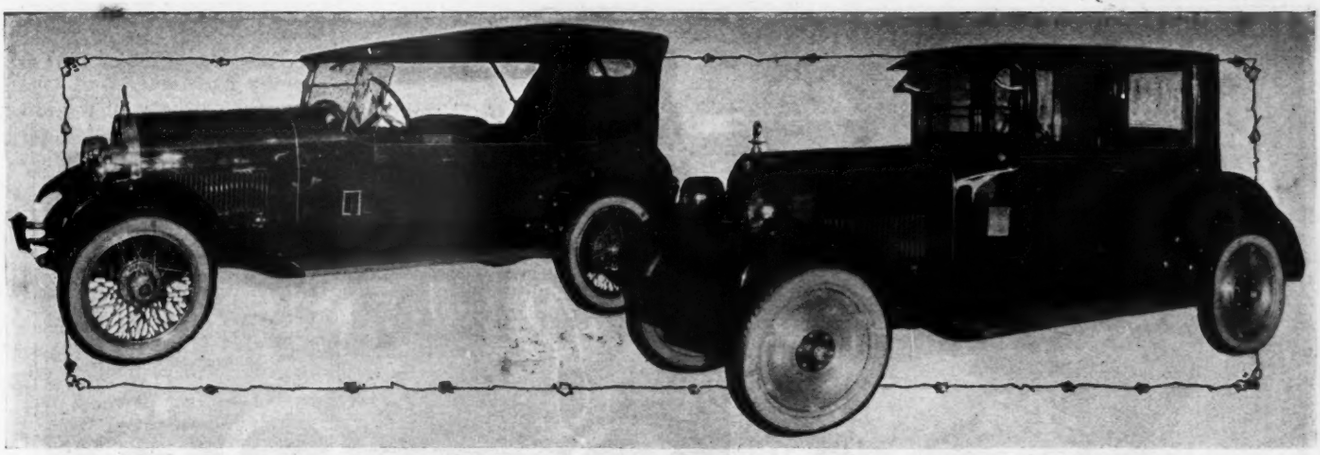
THE Standard Sterling model is a refined edition of the Model J which was in production during the past year. The engine is much the same as before, but changes have been made in the design of the lubrication system and ignition is by a signal system using a Splitdorf magneto. The radiator and fenders have been redesigned and the runningboards have been changed slightly to fit in with the new body.

Shock absorbers have been added as stock equipment.

LAFAYETTE HAS A NEW COUPE

LAFAYETTE has added a new body model in the four-door coupe. The changes are of very minor nature. The body is slightly larger in the tonneau, but other changes are not obvious.





A new five passenger sport model with wire wheels standard is now part of the Pilot line. At the right is a Pilot closed model

Pilot Adds a Sport Model

PILOT has added a five-passenger sport model to its line for 1922, the newcomer being of streamline design and finished in green, with wire wheels as regular equipment. A spare wire wheel is carried at the back. Particular attention has been given to comfortable seating arrangements, and the top has been designed to conform with the body lines, doing away with the usual side overhang at the windshield. The chassis is identical with the other models, being of 126-in. wheelbase and fitted with a six-cylinder engine 3½ by 5 in. Tires are 32 by 4½ cord.

Anderson Adds a Few Refinements

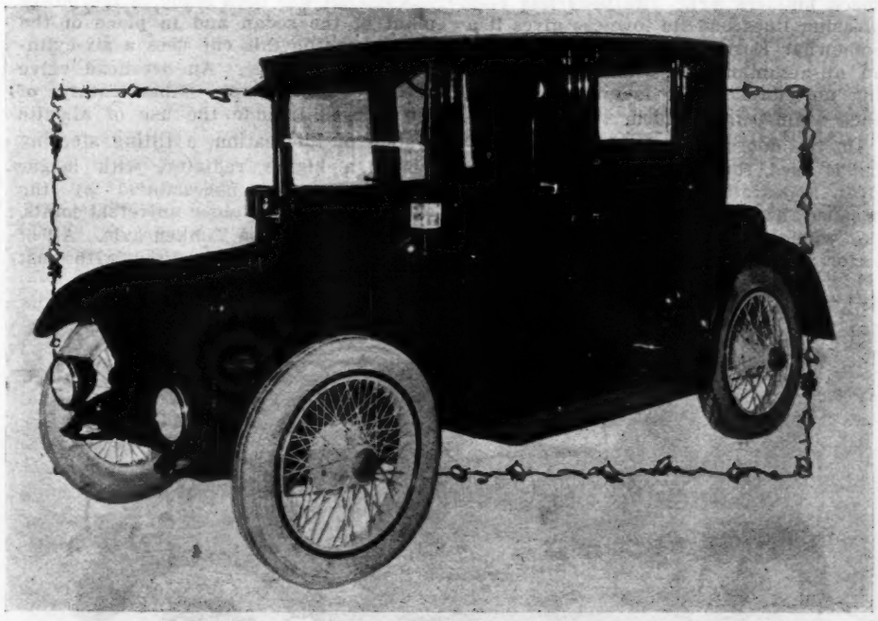
NEW features of the 1922 Anderson common to all models built by the company include a nickel plated windshield cleaner, motometer on a nickel plated wind radiator cap, barrel-shaped headlamps, either full nickeled or nickel and black enameled, large size Klaxon horn, cowl lights on all open models, barrel-shaped to match the headlamps, and black enameled, large size Klaxon new style full nickeled windshield on all open models, a new foot dimming device and appropriate pin striping on the bodies of all models in all colors.

Studebaker Refinements in Chassis and Bodies

STUDEBAKER is showing a refined line of models with both chassis and body changes. None of the principal chassis dimensions have been altered but in the two larger models a rather radical change has been made in the incorporation of the disk in place of the cone type of clutch. This has been adopted not because the former clutch proved unsatisfactory as a clutch but to facilitate gear changing. The stiffness of the frame has been increased on both the larger models, the Special Six and Big Six, and the bodies have been entirely redesigned, although along very similar lines to those of last year.

The Big Six is now fitted with a newly designed seven-passenger touring body with a heavy beaded edge and a larger and higher hood. There is also a new one-piece windshield, permitting greater vision, a windshield wiper fitted as standard equipment and cowl parking lights, which are miniature headlights in the corners of the windshield. There is now also a cowl ventilator, operating from the dash, and a courtesy light on the driver's left. The tool kit has now been placed in a pocket on the left side of the driver and is locked with the same key that fits the transmission lock and ignition switch. The instruments have been rearranged on the dash and grouped to give better visability.

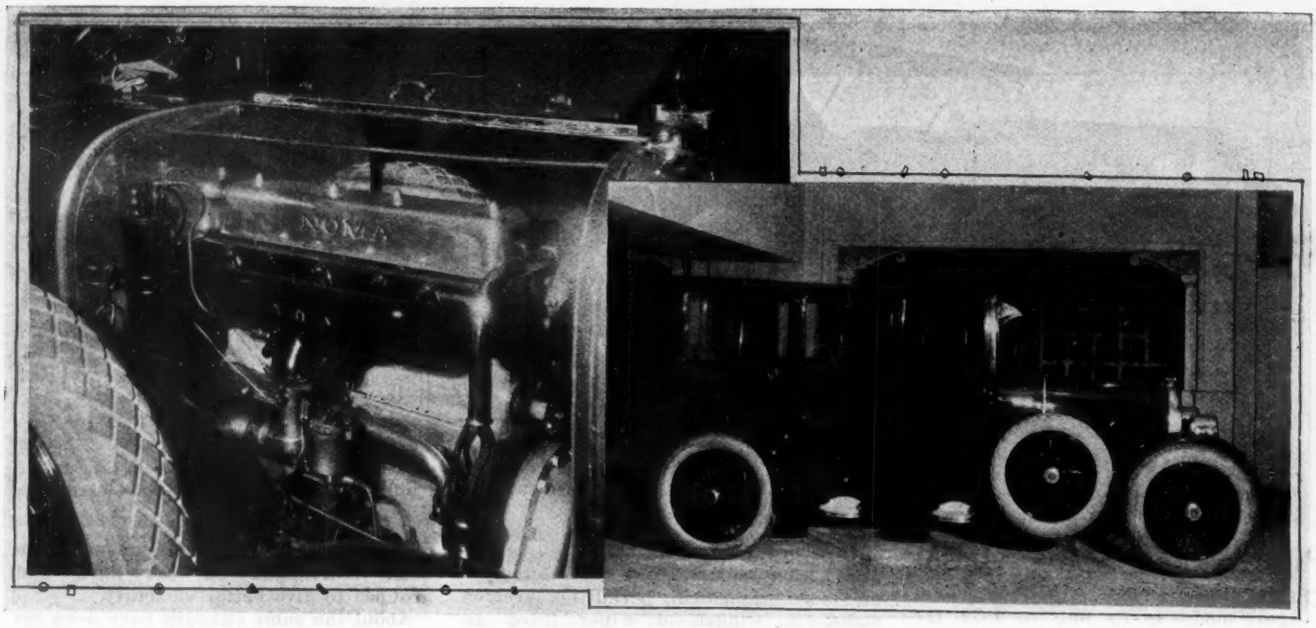
About the same changes have been incorporated on the Special Six as on the Big Six, including the disk clutch, cowl ventilator, new windshield, etc. The Little Six, which is the newest of the three models, has been provided with a cowl ventilator and the windshield wiper, although the chassis and body have not been otherwise altered in any material detail.



Rauch & Lange Adds Two New Models

A FOUR-PASSENGER brougham to sell for $4250 and a five-passenger sedan at the same price, have been added to the Rauch & Lange line of electrics for 1922. As might be expected, both cars are beautiful coach jobs, and are by far the best looking electrics this company has ever turned out, inasmuch as they are in one instance 17 inches lower than last year's model. The lowness of the new bodies has been secured partially through the adoption of semi-elliptic springs underslung on the rear axle in place of the former three-quarter elliptic and the adoption of a crank front axle, in place of the straight type.

Better steering has been secured by inclining the front axle and by a few other changes in the steering mechanism. This does away with all vibration in the steering handle. The wheelbase in both models in 102 inches, with wood wheels as regular equipment and wire wheels at extra cost. A slight change has been made in the windshield construction, which is of the two-piece type. The chassis and control features are practically the same as on the former model.



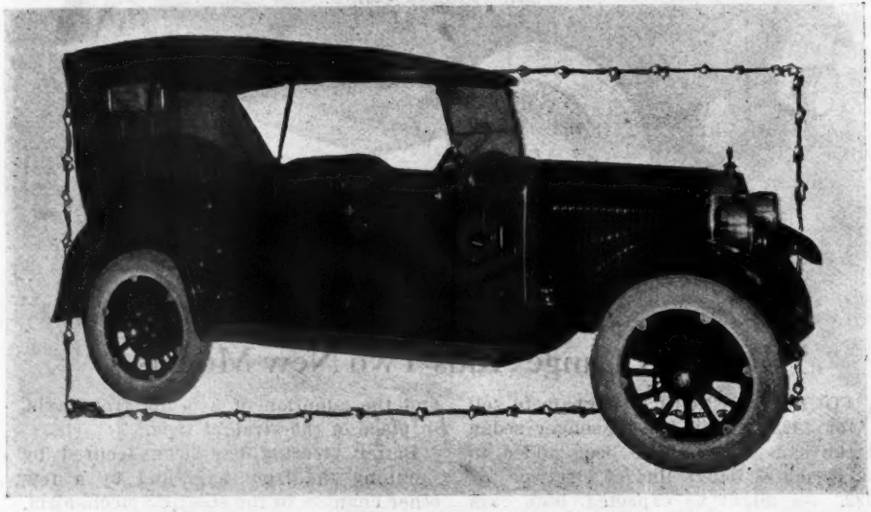
An overhead valve six-cylinder Beaver engine is used in the new Noma sedan

Noma Adds a Sedan

NOMA, which heretofore has concentrated its production chiefly on the sporting types of cars, has now entered the field with a seven-passenger sedan which is an excellent example of the coach builders' art. The body has very pleasing lines and its lowness gives it a somewhat European look. The body is an all-auminum construction, there being no joints in the metal whatsoever, each seam being welded.

On the doors and windows no moulding is used, thus making not only for a clean appearance but strength as well, because the aluminum is shaped to form the window and door sashes. The interior seating arrangement is well worked out and a handsome appearance has been secured by lining the top with a panel of circassian walnut, inlaid with rosewood. The sedan sells for $5500 and wire wheels are standard equipment, these carrying 32 x 4 in. or 33 x 5 in. tires. The wheelbase is 128 in.

A change has been made in the power plant of the sedan and in place of the former engine this car uses a six-cylinder Beaver engine. An overhead valve design of high power. Other features of the chassis include the use of alemite system of lubrication, a tilting steering wheel, a higher radiator, with larger cooling capacity necessitated by the change in engine, fabric universal joints, Detroit gearset and Timken axle. All of the Noma models are fitted with cast aluminum steps, and individual fenders which are hand hammered from one piece of metal. The standard wheelbase is 128 in.



Patterson Has New Body Lines

WHILE there are no vital changes in the chassis, the 1922 line of Paterson cars embraces a complete redesign of body. The radiator has more pleasing lines, which is true of the body also. More seating room has been secured, but not at the expense of a well-proportioned body. Drum type headlamps are now fitted and the top has been materially improved over the old model. The car has a 120-in. wheelbase and tires 32 by 4½ in. Touring sells for $1550 f.o.b. factory.

Reo Business Coupe

THE new Reo coupe is of the utility type of enclosed car. Selling for $1895, or only $300 more than the touring cars, this is one of the practical type of enclosed bodies which are making a strong appeal at the Palace. Unlike most of the bodies of this type, however, it has the V-front glass for clear vision. By means of wing nut clamps the upper glasses in the windshield can be secured at any angle desired.

A ventilator having its outlet on the cowl has been provided. It is controlled from the instrument board. Air is admitted to the body at the base of the dash panel, thus delivering the air on the toe board. The interior arrangement of the body is in keeping with its business purposes. The seat is capable of holding three adults and it is upholstered in leather. The lower half of the body is upholstered in the same way and the upper half in special fabric. The top, being of the permanent soft type, does not reverberate. This body is mounted on the regular chassis.

Elcar Refines Bodies

ELCAR six-cylinder bodies have been changed slightly in shape and appearance. They are three inches longer than the previous models and have a flat edge. There is two inches more space in the driver's compartment, with consequent increase in length room. The cowl has been raised and the top edge of the open lined bodies is flat, rounding slightly into the sides.

A new style top is used which extends further over the windshield than the type used heretofore. A new design hood which has been patented is entirely

waterproof and has all hinges concealed. The fenders have a deeper crown, a wider skirt, a longer visor, and are modeled into a reversed curve at the rear end. The windshield is wider and the top holders have been replaced by concealed sockets.

The instrument board has been extensively changed and the door handles operate from the outside with the release on the inside. The seats and backs have been redesigned so that the tilt and curve give a maximum of comfort.

The chassis has not been changed except for some refinements in the spring design. The front springs are one inch longer than formerly and Gabriel snubbers are now regular equipment on the front and rear. The radiator core has been increased in depth, and instead of the ordinary tail light, an automatic stop signal connected with the brake mechanism is furnished with regular equipment. The wheelbase is now 118 in.

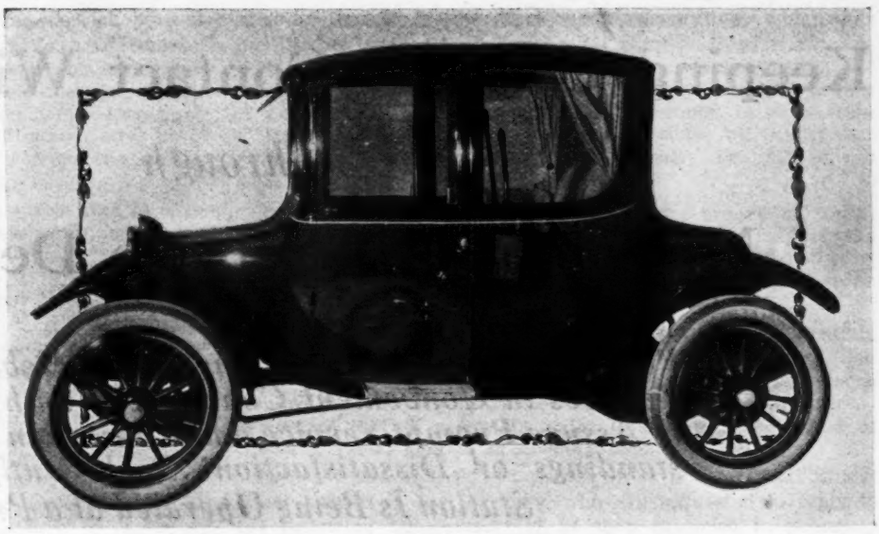
The body of the surburban model has been made wider and longer to provide for five passengers. The coupe is also larger and with the addition of a forward facing auxiliary seat is possible to seat four passengers. The auxiliary seat folds under the cowl when not in use.

An extension rod on the Locomobile tail light bracket protects the glass from breakage

Locomobile Detail Changes

THE Locomobile 48 remains the same as last year but there are a great number of detailed mechanical refinements. The oil filler and breather pipe has been moved out from between the cylinders to a more accessible position. There are now two oil pumps which provide for equal lubrication to both ends of the engine when the car is running down hill. The fuel pressure pump has been redesigned and is now the constant pressure type, doing away with the relief valve.

Metal boots are used on the drag link and the crankshaft has been considerably stiffened by increasing the main bearing diameter from 1¼ to 1½ in. The horn button is now located in the center of the steering wheel. An added improvement is the extension back of the tail lamp to protect the glass from injury.



Millburn Electric Has New Model

THE Milburn has a new electric known as the Model 27-L. The chassis changes with the exception of the new motor and controller are more or less in the nature of refinements. The motor is considerably larger than that used in previous models, and to properly supply this larger motor a larger battery has been installed. The controller has been improved, and there is a shunt speed which is a special high speed for use in open country roads. A price reduction of $300 brings the price of the present model to $2385. Additional equipment includes snubbers, Sangamo meter, bolt and ammeter.

New Franklin Four-Cylinder Car to Sell for Less Than $1000—Economical Operation a Feature

THE Franklin four-cylinder model chassis which was shown at the Franklin dealers' dinner during the week of the New York show follows in many respects the line of construction used in the six-cylinder car.

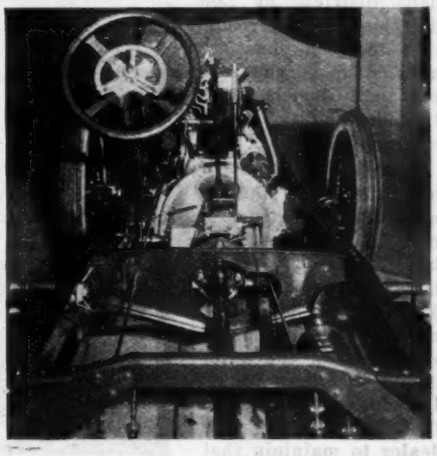
With the exception that there are two less cylinders, the engine of the small car is the same size as the six. Cylinder dimensions are the same—3¼ by 4 in. and parts are interchangeable with the six. This also holds true of parts like the clutch, etc.

One departure from the big car is the use of semi-elliptic springs on the four-cylinder. These are overslung on the rear axle and underslung on the front axle. The frame is of laminated wood construction, carrying at each corner suitable brackets for mounting the springs. The wheelbase is 102 in. Wood wheels are fitted, carrying 30 by 3½ in. Goodyear cord tires.

The rear springs have been mounted very close to the wheels, and this has made possible the use of a light rear axle. The service brake is on the transmission and the emergency on the rear wheels. The latter are operated by a single cable. The propeller shaft carries two fabric universal joints. Steering is by worm and wheel, operating the tie rod by a transverse drag link.

The engine, which, by the way, is cooled by a blower fan mounted on the front end of the camshaft, has been mounted very accessibly and is itself accessible. An unusual feature in connection with the carburetion system is the carrying of all the exhaust gases through an aluminum jacket surrounding a hot-spot on the intake manifold. By this layout the forward end of the exhaust pipe is brought around the front cylinder to the carbureter side and thereby escapes the ignition, starting and lighting units on the right side of the engine. The electrical equipment consists of the Atwater-Kent system.

No definite price has been set on the four-cylinder car, but assurance has been given that it will sell for less than $1,000. Owing to the lightweight construction and other mechanical features, it is claimed the car will travel between 28 and 30 miles on a gallon of fuel and 12,000 to 13,000 miles on a set of tires.



The Sterns has made the frame heavier and the third cross-member has been redesigned and now fastens to both top and bottom sill

Keeping Personal Contact With Customers *Through* Neighborhood Service Departments

Paul G. Hoffman, Los Angeles Studebaker Dealer, Believes in Convenient Connections with His Owners to Assure Prompt Service and Correction of Misunderstandings or Dissatisfaction—Each Outlying Service Station Is Being Operated at a Profit

WHAT is the best way to keep an owner "sold" on his car? What are the most effective methods to employ in discovering and dissolving the grouches which occasionally develop after a car is sold and which are liable to take on a contagious nature unless quickly decapitated? Grouches that nine chances out of ten spring from causes that could be easily corrected by the dealer if he but had the opportunity when these causes first appeared.

There are various answers to these questions, but they all must revolve around that all-powerful factor—**personal contact.**

Paul G. Hoffman, Studebaker dealer in Los Angeles and Los Angeles county, has developed a policy of personal contact that has made him one of the most successful dealers in the entire west.

There are many different phases to the "personal contact" program of the Hoffman organization. One of the most interesting features is the neighborhood service station, and we will consider this as Plank No. 1.

Development of Neighborhood Service

Not very long ago Hoffman was confronted with the problem: **"When the demands for service are greater than your facilities to handle them, what then?"** The naural answer was to acquire more space adjoining the establishment or around the corner, add more mechanics to the payroll and install more labor-saving devices. Hoffman accepted the natural answer only in part. He not only acquired additional space adjoining his present building, but he extended his organization into the resident districts of Los Angeles, with the result that today he has organized a service department that is functioning with marked efficiency.

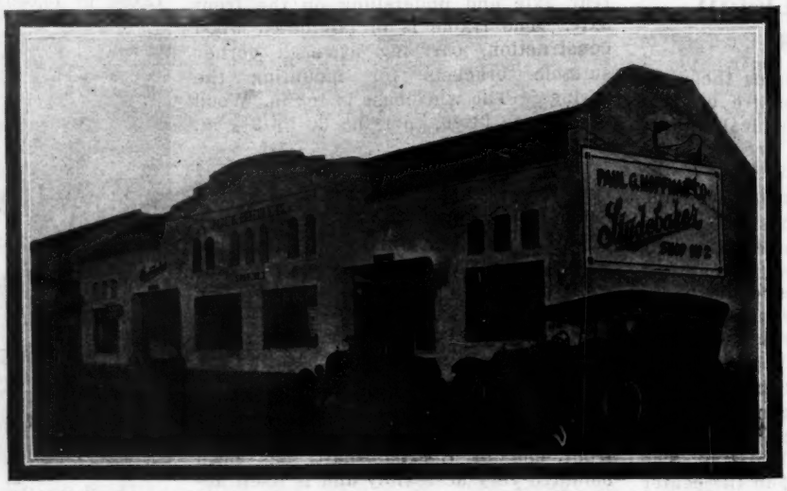
The establishment of outside service stations maintained strictly as a part of the central or home service department is described by Mr. Hoffman as but a natural step in the development of the automobile business today. **Its chief advantage is that it enables the dealer to maintain that line of personal contact between owner and the service department that is so easily lost when a service department at the main dealer establishment becomes large and unwieldy.**

Before locating his outside service stations, Mr. Hoffman and his associates first compiled a city directory of Studebaker owners from their files, showing car sales over a period of several years. The directory was then transferred to a map, which was blocked out in various colors to show which districts held the greatest number of Studebaker owners. When this was determined, suitable locations for the neighborhood service stations were found and buildings either erected or buildings already in existence were leased.

"These neighborhood service stations enable us to keep in close contact with all our owners," said Mr. Carpenter, general manager of the Hoffman organization. "The fact that a Studebaker owner has a Hoffman service station within easy reach of his home, where he can expect the same service as at the central dealer stablishment, is an incentive to the owner to have all of his work done by our organization.

"The service manager at these branch service stations and the mechanics form a close business acquaintance with the owners. They not only know their names and are able to greet them in a personal way when they drive in, but they also gain an intimate acquaintance with their cars and are able to do service at a minimum cost without sacrificing efficiency.

"If a Studebaker owner may have some ignition trouble in the morning and is unable to start his car, he may call a Hoffman service station in his neighborhood and have a service car at his garage within a few minutes. If there were no Hoffman service station in his neighborhood, it would be more than likely that the owner could call some other establishment—thus breaking that line of "continuous contact' with the dealer."



One of the neighborhood service departments of Paul G. Hoffman, Studebaker Los Angeles dealer, which is keeping low the "divorce" rate in his Studebaker "family"

It is interesting to note that each outside service station is operating at a profit, despite the fact that many of Hoffman's competitors thought he was embarking on a losing proposition when he opened up his service branches.

Although located in other parts of the city, the outside service stations are strictly a part

of the Hoffman organization. Each outside service station manager submits a detailed report of work done and money collected to the general service superintendent each day. And, in order to emphasize the fact that the outside service station is a unit of the general Hoffman organization, a follow-up card is sent out under the signature of Paul G. Hoffman after each repair job is completed, seeking to learn from the owner whether the work done is satisfactory. The cards are signed by Mr. Hoffman in order that the owner may feel free to telephone or call and see him personally if there is any cause for dissatisfaction.

These follow-up cards read as follows:

"Our record show that your car was in our Vermont avenue shop recently for attention.

"We are making a sincere effort to do good work at a fair remuneration. Our aim is to insure Studebaker owners the utmost service and satisfaction from their cars.

"I will personally appreciate your availing yourself of the return card if the work done on your car was not satisfactory."

"Personal Contact" Through Salesmen

Plank No. 2 of the "personal contact" program of the Hoffman organization provides that each salesman must keep in touch with those to whom he has sold cars at specified intervals for several months after the purchase is made, in order to avoid any grouches developing that can be easily corrected.

Plank No. 3 of the "personal contact" program is an annual event that is designed to bring reports of the performances o fthe cars of all Studebaker owners in Los Angeles to whom Hoffman has sold cars. Postcards are sent out to all owners requesting the following information: Mileage to date; tire mileage; make of tires, cord or fabric; repair expense. A space is also left for suggestions. Once each year the information contained on these card is assembled and digested, and the results are published in advertisements in the daily newspapers.

An Efficiency Contest for Studebaker Dealers

Plank No. 4 of the "personal contact" program is more comprehensive in its scope than the other planks. The Los Angeles branch of the Studebaker corporation, which has jurisdiction over all of Southern California, works in conjunction with the Hoffman organization, which controls the sale and distribution in the city of Los Angeles, the county of Los Angeles, and a part of Orange county, in conducting a "friendly dealer efficiency contest," in which all Studebaker owners participate. Trophies are annually awarded to the most efficient dealer in the territory.

Representatives of the Studebaker factory branch in Southern California and the Hoffman organization inspect the various dealer establishments—those controlled directly by Hoffman and those controlled by the factory branch—three times a year.

Points are given for various consideration, such as location, appearance and neatness, display and condition of cars, and night display of salesroom; number and condition of demonstrator; courtesy, appearance and discipline of sales force; system of getting prospects, sales follow-up, and method of checking sales; system of keeping books, etc., etc.

Near the end of the year a form letter is sent to all Studebaker owners in the territory, who are requested to reply to the following questions: (1) Is shop equipped to promptly give efficient service? (2) Do you receive courteous and whole-hearted treatment? (3) Has work you have had done been entirely satisfactory? (4) Are charges correct, and are itemized bills rendered? (5) Is stock department able to promptly supply parts?

The five questions answered by the owners play ay important part in the ultimate decision in the contest.

Plank No. 6 of the "personal contact" program provides for the publication of a house organ about twice a month which carriers interesting gossip about Studebaker owners, the latest developments at the Studebaker factory and in the Hoffman organization; "service hints" from the service department; any special local matters affecting the motorist, and other reading matter to interest the owner.

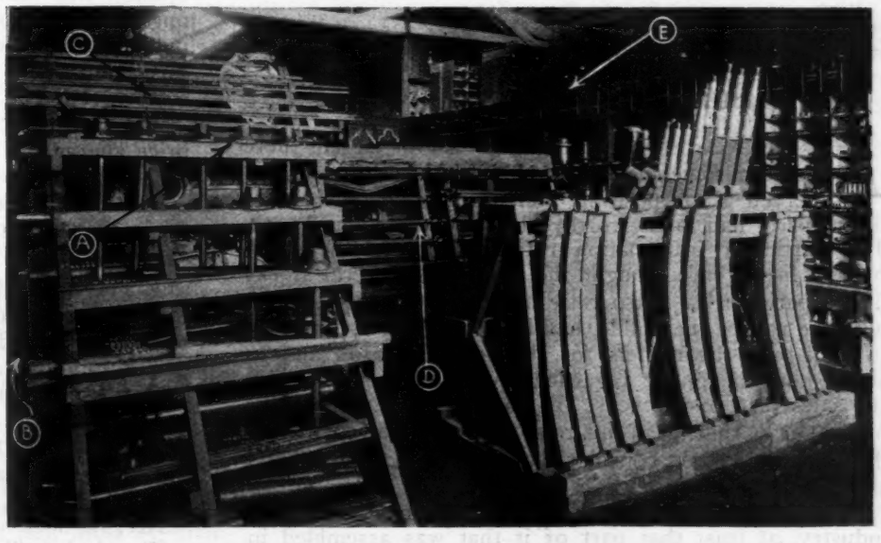
Personal contact, as practiced by the Hoffman organization, keep the divorce rate in the "Studebaker family" in Los Angeles very low.

Study This Stockroom for Time and Space Saving Ideas

THE storeroom of the San Francisco branch of the International Motor Co. possesses many unusual features which could well be studied by other dealers.

One rack, designed for holding springs and axles, has proven to be a great economizer of space. The springs and axles are kept from moving sidewise by steel pins. At the left is a special rack for holding full floating shafts with and without flanges. The shafts with flange attached are carried on steps, as shown at (A), and shafts without flanges are laid horizontal, (B). Brake pull rods are carried on top, (C).

There is a special pyramid rack (D), for driveshafts on the outside. Brake rods are carried on the inside of the rack, and there is a similar rack of pegs on the outside for camshafts and crankshafts. Short shafts are carried on the inside. A pyramid for spring leaves, which is graduated to fit all sizes of springs is also supplied; the short leaves are carried on the upper section and the longer below. A series of racks extend along the side of the room, tool boxes being placed on the top rack, where there is no danger of scratching them. The next section below the tool boxes is for hubs, and below this, cylinder blocks and hub flanges, etc.



Each section of the bins is numbered, thus enabling the stockmen to find any part instantly.

All heavy parts are placed near the shipping bench, eliminating the necessity of carrying them a great distance. The heavy assembled parts are stored in the basement. These are crated ready for shipment.

In one corner of the stockroom, just inside the entrance where mechanics come to obtain parts, is a special section devoted to cap screws, bolts, nuts, washers, hose clamps and other small parts that are continually in demand. This eliminates a lot of walking on the part of the stockkeeper.

All record of parts is kept in a ledger and each part must be accounted for in the daily balance of the ledger.

MOTOR AGE
Reg. U. S. Pat. Off.
PUBLISHED EVERY THURSDAY

Vol. XLI Thursday, January 19, 1922 No. 3

THE CLASS JOURNAL COMPANY
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Long Distance Telephone.....Randolph 6960

SUBSCRIPTION RATES
United States, Mexico and U. S. Possessions.....$3.00 per year
Canada.....5.00 per year
All Other Countries in Postal Union.....6.00 per year
Single Copies.....35 cents
Subscriptions accepted only from the Automotive Trade

Owned by United Publishers Corporation, Address 239 West 39th St., New York; H. M. Swetland, President; Charles G. Phillips, Vice-President; A. C. Pearson, Treasurer; Fritz J. Frank, Secretary.
Entered as second-class matter Sept. 19, 1899, at the post-office at Chicago, Ill., under the Act of March 3, 1879.
Member of Associated Business Papers, Inc.
Member of the Audit Bureau of Circulations.

Summing Up the Show

As the New York Automobile Show closed there came a somewhat unexpected evidence that it had served a purpose in convincing the public that the industry had made worthy plans for the coming year. The particular information referred to was the stock market list, which brought the news that several stocks had experienced a sharp raise after the financiers, along with the rest of the public, had been given an opportunity to look over the models for the coming season and to judge how the public regarded these; and also, to hear the sales plan of the year. It was interesting that some of the stocks sharing in this raise were of those companies that had announced considerable changes in product and sales effort.

There is no doubt that the end of the show found the industry, at least that part of it that was assembled in New York, cheerful. Let us hasten to say that this cheerfulness does not take the form of a belief that the company executive can go home and order production at full speed and sit back content that as the vehicles go out a stream of money will pour in through the sales office.

The cheerfulness is based on evidence that more people paid to see the New York show than ever before; that more cars were sold than any New York dealer expected would be sold; that the attendance grew steadily all week; that the prospect names gathered at the show were actually the names of people who lived at the addresses given; that the booths of the better class of equipment and accessories were crowded; that many dealers who have previously ignored accessories talked business with exhibitors.

These reasons might be continued but these will serve to illustrate. The thought behind it all appears to be that both the public and the dealer is taking the industry seriously.

Now for some major questions asked at the show:

Used Cars: This was the most general topic of conversation. There was no final decision and there will be none for a long time to come. The question is too big; affects too many people, and involves too much money to permit of an offhand solution. All of the conversation around the show went into the melting pot and a lot more conversation will go to the same place. Some day the best of the present expediencies will probably form the basis of a system that will handle this greatest of by-product businesses in a more or less satisfactory manner.

The best thought at the moment is that the manufacturer realizes that his dealers cannot keep on selling new cars if his profit on such sales all go into the used cars. In not a few cases, production will be modified to an extent by the stocks of used cars in the dealers' hands.

Prices: The price situation was more or less unsatisfactory at the close of the show, as was to have been expected. When eighteen price adjustments were announced the first day, some thought the adjustment business was about worked out, but when this list grew to twenty-nine during the week it raised doubts.

It was evident that some executives were looking for signs and in need of someone to help them make up their minds. At the end of the week the general opinion was that the price of vehicles above $1500 might be regarded as fairly stable, but that the Dodge publicity movement of holding up the price adjustment until Feb. 1 had put the lower price class in a state of doubt.

Some manufacturers in the Dodge class talked of price guarantees to extend over several months; having, no doubt, so soon forgotten the disastrous experiences of some very well known manufacturers with the guarantee problems.

Sales Practice: The evidence appears to be that sales practice and policy is to be much improved during the coming season. Some of the dealer meetings were very fine affairs, but at others there was the old disposition to crack the whip and issue commands. There is no doubt that the manufacturer wants the cooperation and help of the distributor and dealer but the manufacturer is a good deal in the position of the man who has always regarded his wife as a servant and then, when he needs her cooperation and advice, he does not know how to ask for it.

The dealer, like the wife, has emerged from the scullery, and it is doubtful whether his former leaders are competent to lead him in his new position, or whether he will permit himself to be led. The present circumstances appear to be favorable to the building of an equitable sales system in the industry.

Under the circumstances it is interesting to note a comment of Mr. Marsh, the economist, in his address to the S. A. E. He said that his comparison of figures of recent

years had revealed to him the industry had produced during last year at between 70 and 80 per cent of the year previous. His experience with many lines of manufacturing business, he said, had been convincing that at this rate of production great sales unrest was certain to result. When he saw these figures, the speaker said, he knew that the show would bring price competition, and this feverish competition is almost certain to continue until the production goes higher or lower.

So we say to the dealer—there is no ready made solution of your problems and you had best train for real work in the months to come and keep in mind that the decisions of today are likely to have an important bearing on the practices of the future.

Defining the Salesman

SOME weeks ago MOTOR AGE printed the following as a definition of a salesman:

A salesman is a man who tells the truth regarding the quality, delivery and the price of his goods.

Now comes J. C. Grootenhuis, managing director of H. Englebert & Co., of 71 Bezuidenhout, The Hague, and offers this definition as a better one: .

A salesman is a man who proves with arguments that the goods are better, the delivery prompter, and the price more advantageous than you were aware of.

We are inclined to stand corrected on this definition sent to us by the long-distance but appreciative reader of MOTOR AGE.

Good Custom in Danger

ONE of the finest customs in the world appears to be in danger. That is the custom of the Chinese to pay all of their debts on the New Year. The recent reports are that there is not money enough in China to permit this operation in that country where banks have not established the check system to make the available currency sufficiently elastic. As a result, it is possible that many debts in China this year will be paid only by promises. An appeal has been made to the international banking system to hasten a loan to enable the Chinese to follow their ancient and excellent custom and so it will not be allowed to die.

In this and other countries where there is not only no date for the payment of debts, but where the national custom appears to be rather to avoid paying them as long as possible, the benefit of this habit can be appreciated.

In America it too often happens that the man who most needs the money that is coming to him is the last one to get it. We hear in this office much of the troubles of the service dealers, who have large amounts coming to them but who cannot collect it. Usually the men who owe the most to the service dealers are the men best able to pay it. In fact they are men to whom the amount of the delayed bill means very little, so little in fact that most of them do not think how important so small a sum of money can be to another man.

What the service dealer needs is a little more determination in asking his customers for his money. There are other ways of asking for money than merely sending a bill with "Please Remit" stamped on the bottom. Nor is it necessary to send a professional bill collector around to make a nuisance of himself until he gets the money. One of the weakest spots in our national manners is the way we "dun people." It is time we took stock of ourselves and improved our manners in this respect and established a way of talking about money due that is polite and pleasant.

The automobile sales business is established as a cash business. It is time that the service end of the business became so established, and there never was a better time to start than right now, and if the service men will start the establishment of such a custom in a polite and pleasant way, they will be surprised at the results. Also they will find that by collecting the money due them since last summer, how well it will fit into their plans for keeping their help all winter, for stocking up on accessories for the spring trade and for buying that equipment that is so very necessary for the proper conduct of their business.

So let us follow the lead of the very polite Chinese and establish a cash system, or at least an annual settlement day in the service business.

Blue Denims and the White Collar

AN organization engaged in the sale and maintenance of automobiles to succeed must, regardless of the scale of its operations, contain within its personnel two distinct styles of ability. They are ability of the technical type and managerial ability.

Technical ability is subdivided into two branches. These two branches are personified in the manually skilled mechanic and the equally skilled trouble-shooter and diagnostician. Given these two essentials, the required actual maintenance operations on the automobile are efficiently executed.

The mechanic, regardless of how fine his tools or advanced his skill, is helpless if he has no working medium on which to exert his ability. Not always do the technical workers realize this. Not always do they appreciate the fact that to provide this medium requires the exercising of ability without which the organizational circuit is incomplete. This is provided by the manager or business head of the organization. He exercises the caliber of his ability in attending to the many details incident to the conduct of the business.

The shop respects and recognizes ability where it is displayed by one of its members, but very often fails to recognize and respect the ability by the smoothness of operation and freedom from noise of the car on which he has exercised his skill. The manager or executive is gaged by something less tangible and noticeable. His daily duties of handling the pleased and the displeased, in securing and maintaining the good will of the jobber of supplies and the local bank require the effort and ability. And he is not free from care and worry. Analogous to the smooth running car of the good manual workman, his caliber is manifested by a smooth-running institution. A management that will negotiate the boulevards of prosperity and the uphill pulls of hard times with all cylinders hitting.

Derision and a form of class feeling, if present, and they often are, are detrimental to the eradication of friction. The office and shop must have and show a mutual respect for each other's abilities if clashing of the organizational gears is to be eliminated. For after all the only difference between the workers in the shop and the workers in the office is the location in the particular building of their respective workrooms and their neckwear.

Ford Millions Back of Lelands

Ford Said to Be Silent Man Behind Leland Lincoln Bid

Further Reduction of $200,000 In Federal Tax In Prospect According to Agents

DETROIT, Jan. 17—While no official statement on the subject is forthcoming from the executive offices of Henry Ford, it is stated authoritatively that he is willing to bid as high as $11,000,000 for the assets of the Lincoln Motor Co. if he is forced to do so. The fortunes of the company already are brightening because of his interest in it and the stock has risen several points. It is understood the Lelands will be in nominal control of the factory and that a substantial reduction in the price of Lincoln cars will be made, but the details of Ford's plans in this respect have not been announced.

The property will be sold by the Detroit Trust Co. as receiver, early next month. The bid of $8,000,000 for the assets made in behalf of the Lelands is the largest thus far recorded. According to the reports current here this fund will be provided by Ford although when the bid was filed it was understood stockholders of the company would provide the funds.

Both Henry M. Leland and Henry Ford are exceedingly reticent on the subject but it is known they are close friends. Before the receivership petition was filed, it was understood, Ford was asked by Leland to come to the rescue but refused. If he is financing the new plan it is evident he is anxious to have the Lelands retain control of the enterprise. It is not believed that Ford has any idea of linking up his present plant in any way with that of Leland, but that the money would be in the form of a loan.

A further reduction of $200,000 in back taxes of Lincoln Motor Co. is in prospect, according to government agents working on the case. If effected, final Lincoln tax, originally $4,500,000, will be slightly more than $400,000.

Miles Open Headquarters Monday for Chicago Show

Chicago, Jan. 16—S. A. Miles, general manager of the New York and Chicago automobile shows, has opened headquarters in the Auditorium Hotel for all business in connection with the Chicago show.

A. A. A. AGAINST OIL TARIFF

Washington, Jan. 14—Believing that the proposed tariff of 35 cents a barrel on crude oil, 25 cents a barrel on fuel oil, and the proposed $1 to $3 tariff on asphalt if successful would materially and adversely affect the individual automobile owners of the country and add to their already heavy upkeep, maintenance and taxation burdens, the American Automobile Association has entered a vigorous protest against these proposals.

Salt Lake Set For Big Automobile Show Feb. 20

Salt Lake City, Jan. 14—The 15th annual automobile show will be held the week commencing Feb. 20 in Salt Lake City. The manager, W. D. Rishel, who has staged with only one or two exceptions every local display of this kind since the first 17 years ago, will be assisted by a committee of three.

It is expected every automobile, truck and accessory dealer in Utah and in many of the surrounding states will seek exhibition space. In recent years scores of firms seeking display room have failed to secure space because of their applications coming late. This year a determined effort is being made to impress upon all agencies that haste is necessary to secure desirable locations. Inability of many dealers to learn whether or not they could obtain new model machines from the manufacturers in time for the show held up the announcement of the show date. The opening date is two weeks later than last year owing to seasonal disadvantages in holding the show in the midwinter months.

TRADE WANTS PRICE SETTLEMENT

New York, Jan. 14—Reports made to the directors of the National Automobile Chamber of Commerce at their monthly meeting show that the trade generally is counting upon the stabilization of prices between now and the close of the Chicago show. The directors feel that if any price changes are made after Feb. 1 it will be seriously disturbing to what promises to be a good spring business.

A report on the used car survey, which is under way, shows a tremendous interest in the subject by dealers and manufacturers throughout the country. The N. A. C. C. will welcome suggestions on the subject from anyone who has ideas. Generally speaking, however, the basic thought is that each dealer must solve the problem for himself by "buying them right."

ACCESSORIES SHOW FEATURE

Indianapolis, Jan. 14—The Indianapolis automobile show, scheduled for March 6-11, will devote a great deal more space to accessories than has been possible heretofore.

Chicago Show Is Expected to See End of Price Change

Stabilization of Selling to Follow Few Coming Adjustments, Industry Believes

NEW YORK, Jan. 14—While an extraordinary number of price reductions have been announced in connection with the New York show, it is generally believed that several manufacturing companies which have not made price concessions at this time will announce them at the Chicago show.

There has been some talk that a second reduction would be announced by companies which already have made reductions this year, but the industry does not believe that such will be the case.

It is the consensus of the industry that whatever price changes are in prospect will be cleaned up at the Chicago show, and everyone sincerely hopes that such will be the case, because it is felt that unless prices are stabilized by that time the entire industry will be discouraged.

Kentucky Wagon Plans Call For $500,000 New Capital

Louisville, Ky., Jan. 14—The Kentucky Wagon Mfg. Co., manufacturers of the Dixie Flyer at Louisville, probably will be reorganized with $500,000 additional capital. No final action was taken by the stockholders as all details had not been worked out but according to James R. Duffin, attorney for the company, the $500,000 additional capital will be raised in any case.

Two schemes of reorganization were proposed. Under one of them the company would be merged with a number of automobile manufacturing concerns under the name of the Associated Motor Industries and the other proposition was placing a mortgage of $750,000 on the plant of the Kentucky Wagon Mfg. Co. and the organization of a new company to be known as the Kentucky Mfg. Co. to which the real estate, machinery and equipment of the wagon company would be leased for the period of from five to 10 years.

100,000 STUDEBAKER YEAR

New York, Jan. 16.—Expectations of a 100,000 Studebaker year were expressed by President A. R. Erskine to 500 distributers and dealers gathered at a dinner in the Hotel Plaza here Jan. 12. Erskine stated that the schedule for the first quarter would be 25,000 as against 11,000 of the last quarter of 1921. Total production for last year he told them was 68,000 and for the year previous, 54,000.

Price Reductions Flood Show

FORD SHADES PRICES

Detroit, Jan. 16.—Slight reductions in price ranging from $6 to $15 on various models have been made by the Ford Motor Car Co., effective Jan. 16. Price changes are as follows:

	Old	New
Touring	$360	$348
Runabout	325	319
Coupe	595	580
Sedan	660	645
Chassis	295	285
Truck	445	430
Tractor	625	625

SELDEN TRUCK LOWER

Rochester, N. Y., Jan. 13—New prices on its line of trucks are announced by the Selden Truck Corp. The prices are:

	Old Price	New Price
1½ to 2½-ton	$2360	$2250
2½ to 3½-ton	3425	3250
3½ to 5-ton	4175	3750
5 to 7-ton	5600	4950
Motorbus chassis (capacity, 18 passengers)		3350
Motorbus chassis (capacity, 30 passengers, seated)		4350

CHANDLER PRICES DOWN

Cleveland, Jan. 14—Chandler has reduced prices as follows:

	Old Price	New Price
5-passenger		$1595
2-passenger	$1785	1595
4-passenger		1595
7-passenger	1785	1695
4-passenger Sport		1695
Coupe	2785	2295
Sedan	2885	2395
Limousine		2995

WILLS REDUCES PRICES

New York, Jan. 16—After an announcement last week that no price changes would be made at this time, C. H. Wills & Co. has announced that prices on its various models would be cut materially, effective Jan. 12. The schedule follows:

	Old Price	New Price
Touring car and roadster	$2675	$2475
Coupe	3750	3275
Sedan	4100	3475

GRANT PRICES DROP

Cleveland, Jan. 14—The Grant Motor Car Corp. has made reductions in prices as follows:

	New Price	Old Price
Touring and Roadster	$1385	$1285
Coupe	1895	1950
Sedan	1945	1950

Both open and enclosed models are provided with extra equipment under the new prices.

APPERSON PRICES DOWN

Kokomo, Ind., Jan. 14—Additional reductions on three of its models have been made by the Apperson Bros. Automobile Co. The four passenger sedanette has been reduced to $3625 from $3895; the seven passenger sedan from $3995 to $3695, and the limousine from $4195 to $3895.

BREWSTER PRICES LOWER

New York, Jan. 14—Brewster & Co. has announced the following reductions on the prices of its model No. 21:

	New Price	Old Price
Roadster	$7000	$6000
5-passenger touring	7000	6000
Sedan	10,500	9200

PRICES ON LIBERTY DROP

Detroit, Jan. 14.—Liberty Motors Car Co. has lowered prices as follows:

	New Price	Old Price
5-passenger touring	$1,295	$1,595
Sport	1,495	2,400
Sedan	2,245	2,495

EARL PRICES DROP

Jackson, Mich., Jan. 14—Earl Motors, Inc., has made reductions in prices as follows:

	New Price	Old Price
Touring	$1185	$1285
Sedan	1895	1995

HUPP REDUCES PRICES

New York, Jan. 14—Price reductions on enclosed models were announced to Hupp dealers at the annual meeting and dinner Jan. 12. The sedan will be listed at $1935 and the coupe $1835, the former prices being $2150 and $2100. No change was made in the open models.

GARDNER CAR CHEAPER

New York, Jan. 16—The Gardner Motor Co. has reduced the price of its touring car and roadster from $1095 to $895. The price a year ago was $1295. The sedan is now $1595.

CHAMPION LOWERS PRICES

Philadelphia, Jan. 14—Champion Motors Corp. has reduced the price of its special model from $1195 to $1095.

Cleveland

Model	New Price	Old Price
Roadster	$1175	$1295
Touring car	1195	1295
Coupe	1550	2195
Sedan	1595	2295

Crow-Elkhart

	New Price	Old Price
Four-cylinder touring car	$1095	$1295
Six-cylinder touring car	1345	1545
Six-cylinder sedan	2095	2395

Detroit Electric

	New Price	Old Price
Model 90	$2800	$2985
Model 93	3500	3985

Dupont

	New Price	Old Price
Roadster	$3000	$3400
Touring	3200	3400
Sedan	4000	4900
Coupe	3800	(new)

Elcar

	New Price	Old Price
Four-cylinder models		
Open	$1095	$1145
Coupe	1345	1645
Six-cylinder models		
Open	1395	1595
Coupe	2065	2495
Suburban	2115	2395
Sedan	2165	2495

Ferris 60

	New Price	Old Price
Roadster	$2575	$2695
Touring	2475	2595
Sedan	3475	3695

Fox

The open models of the Fox are priced at $3900. The prices on the coupe and sedan are $4900.

Frontenac

Frontenac announced that the touring car would list at about $2000 and the sedan at $2800 or $2900.

Gearless

Prices of the Gearless (steam) are $2650 for the roadster and $2600 for the touring.

Kelsey

Kelsey announced that the prices on its new model are as follows: Six-cylinder touring, $1800 coupe and sedan, $2700; sport roadster, $2000; four-cylinder touring, $985.

Kissel

	New Price	Old Price
Standard Touring	$2175	$2475
De Luxe Touring	2675	2975
De Luxe Coupe	3275	3775
De Luxe Sedan	3475	3775

Lexington

	New Price	Old Price
5-passenger touring	$1985	$2100
7-passenger sedan	2285	2785
Thorobred	2100	

Malbohm

	New Price	Old Price
4-passenger sport	$1495	$1595
Sedan and coupe	2165	2295

Milburn

The five-passenger Milburn electric brougham was cut to $2385 from $2685.

(Continued on next page.)

(Continued from preceding page.)

Noma

	New Price	Old Price
1-D Speedster	$3000	$3250
1-D Foursome	3100	3350
1-D Six	3200	3450

Oakland

	New Price	Old Price
Roadster	$1095	$1120
Touring	1145	1145
Sport	1265	1265
Coupe	1625	1685
Sedan	1725	1785

Paterson

	New Price	Old Price
3-passenger	$1550	$1595
7-passenger	1585	1625
Sedan and Brougham	2595	2695

Peerless

Prices on open Peerless models have been reduced $90 from $2880 to $2790.

Premier

	New Price	Old Price
5-passenger touring	$3100	$3690
Roadster	3150	3790
7-passenger touring	3250	3890
5-passenger sedan	5000	6000
7-passenger sedan	5100	6100
5-passenger brougham	4300	(new)

Reo

	New Price	Old Price
Roadster	$1595	$1650
Touring	1595	1650
Business coupe	1895	.....
Coupe	2355	2700
Sedan	2435	2750

Sayers

	New Price	Old Price
Touring car	$1695	$1795
Sedan	2795	2995

Standard

	New Price	Old Price
Open models (2-4-7-passenger)	$2500	$3400
Sedan	3600	4800
Vestibule Sedan	3750	5000
Sedanette	3500	4500
Coupe	3250	4500

Stephens

	New Price	Old Price
Roadster	$1800	$1675
4 and 6 passenger touring	1850	1745
4 and 7 passenger sedan	2850	2650
4 and 6 passenger sport	1950	1795

SAVANNAH TRADE ELECTS

Savannah, Ga., Jan. 14—The Savannah Automotive Dealers' Assn. has elected officers for the year 1922 as follows: A. W. Boyd, president; E. D. Craig, first vice-president; M. Kaminsky, second vice-president; J. J. Leautey, treasurer; Edward R. Sinkler, P. S. Bacon, R. H. Richardson, J. S. Wolfe, Guy C. Trapani, directors. A secretary will be named at the next meeting. The association now has 32 members.

Stigma Tax Repeal Depends On Plan of Soldiers' Bonus

President Shifts Stand and Most Every Suggestion for Relief Meets Strong Opposition

WASHINGTON, Jan. 16—Survey of the tax situation shows that the repeal of certain excise taxes depends almost entirely upon the form taken by the proposed soldiers' bonus bill. The automotive industry has directed attention of the administration to the influence of this so-called "stigma" tax as a sales resistance factor at this time when manufacturers are reducing their prices in an effort to stimulate business.

C. C. Hanch, chairman of the tax committee of the National Automobile Chamber of Commerce, conferred with members of Senate and House fiscal committees and with officials in the executive departments Monday. Conferences with representatives of other industries show that the groups which favored a manufacturers' sales tax were not inclined to favor its use for the payment of the bonus and that they object to a bonus in cash.

The administration will back the bonus but President Harding has reversed his position. Only a week ago he was in favor of meeting it from interest payments on the debts of the allies but he has abandoned this idea. He contends, however, that whatever measure is passed should stipulate the source of the revenue. It is understood he would not object to some form of sales tax for the purpose but a sales tax in any form will be bitterly opposed by the agricultural "bloc." Representative Bacharach of New Jersey has proposed a gasoline tax but this also will be fought to the end by the powerful agricultural interests.

Soldier bonus legislation and revision of the internal revenue laws will not be reached until late in the session and if a bill is passed providing for payment of a bonus out of interest on foreign debts it probably will be vetoed by the president.

If Congress does not insist upon a cash bonus, the indications now are that with a program of economy it will be possible early in 1924 to repeal some of the remaining excise taxes. The heaviest burden at present is carried by the automotive industry.

Until it is determined what course will be followed by Congress it will be difficult for automobile interests to map out recommendations.

SERVICE ATTENDANCE SMALL

NEW YORK, Jan. 16.—The third annual convention of service associations was held here on Jan. 13 with less than a score of delegates. It has been the custom in the past to hold this convention during show week because a number of service executives from all parts of the country are in the city. Due to curtailment of expenses this year, not many service men have been away from their factories and it was not expected that the meeting would amount to more than a get-together dinner.

H. R. Cobleigh, service secretary of the N. A. C. C., spoke at length on the work the Chamber had done in promoting local associations and gave a list of 17 now in existence and reported several others in the process of formation. Representatives from Brooklyn, Newark and New York comprised the bulk of the delegates.

SHOWS FAITH IN SOUTH

New York, Jan. 16—Conditions in the south are improving slowly but the improvement is substantial and promises to be lasting in the opinion of Charles W. Tway of Atlanta, Ga., southern distributer for Haynes cars and vice-president of the Hanson Motor Co.

"I am convinced," said Tway, "that sales of automobiles in southern states in the current year will exceed the total of 1921. Banking conditions show improvement, which is in contrast with the situation last year when difficulty was experienced by business men in obtaining adequate financial accommodations. That I have confidence in the future of the automobile industry in the south is evident from the fact that I have under construction a building at Atlanta, Ga., to cost $200,000 which will be used largely by the Haynes Co."

SERVICE ASSOCIATION ELECTS

New York, Jan. 16.—At the annual meeting of the Automotive Service Assn. of Brooklyn held last week the following officers were elected: President, Joseph J. McMullen; vice-president, Grover F. May; secretary, Fred M. Smith; treasurer, Harvey J. Wechtel. The three new directors are G. T. McFarland, Edward C. Krieger and George Milligan. Retiring President McFarland was presented with a gold watch in appreciation of his services to the organization. The next meeting will be held Feb. 13 at which time Hon. John G. Snyder, the "automobile lawyer of Brooklyn," will speak on "The Service Man's Relations."

BUS OWNERS ORGANIZE

Columbus, O., Jan. 14—The Ohio Bus Owners' Assn. is the name of a new organization formed by bus owners from many sections of the Buckeye state meeting in Columbus early in January. Headquarters for the new association are located here. The initial membership consists of 125.

PORTER SALE REPORT

New York, Jan. 16—It is stated that George Van Tuyl, receiver of the American & British Manufacturing Corp., has sold to the F. S. Pearson Engineering Corp. of 115 Broadway, the entire Porter automobile product in stock and the entire future production of Porter automobiles.

December Car Production 79,784 Declares N. A. C. C.

Shipments Greater Than Year Ago *But 19% Less Than For the* Month of November

NEW YORK, Jan. 14—December production of passenger cars and trucks by all makers is estimated by the National Automobile Chamber of Commerce at 79,784. Reports of December shipments by members of the N. A. C. C. show that they were 105 per cent of shipments for December 1920 but 19 per cent less than for November. Shipments in November last year declined 14 per cent from the previous month. The shipment figures for the year by months will be found in the accompanying table.

OLDSMOBILE DEALERS' BANQUET

New York, Jan. 14—Four hundred eastern Oldsmobile dealers gathered at a banquet at the Commodore Hotel during show week heard Pierre S. du Pont, president of General Motors Corp, A. B. C. Hardy, president of the Olds Motor Works, and several other factory executives, together with distributors, speak on conditions in the industry, particularly as the dealer interests were affected.

A strong recommendation was made by du Pont for a closer relationship between the dealer and the factory. Hardy told the dealers that the company was committed to the continuance of the present policy of distributing the Olds products through distributors and that it would endeavor to strengthen its sales organization, particularly in cities of more than 5000 population.

SOUTHEASTERN A. A. A.

Jacksonville, Fla., Jan. 14—Delegates from seven southern states met here last week for the purpose of organizing the southeastern division of the American Automobile Assn. More than 50 delegates were present, together with George C. Diehl, of Buffalo, president of the American association, and A. G. Seiler, of Washington, highway engineer of the national organization. The states represented were Kentucky, Tennessee, Georgia, North Carolina, South Carolina, Alabama and Florida.

CARS GOOD FOR DAMAGE

Boston, Jan. 16.—A bill permitting a person injured by an automobile driven by another to have a lien on the automobile for the satisfaction of any settlement he may recover against the owner is recommended for the consideration of the legislature in a report filed today by the Special Insurance Commission.

USED CARS TEXAS CLOUD

Dallas, Tex., Jan. 14—About the only dark cloud on the horizon of the Dallas retail automobile dealer as the new year breaks over the business is the used car, according to William Morris, president of the Texas Automobile Assn. and one of the local dealers and distributors. Plans are being worked out for solving that problem, and with it solved the retailers of Dallas, and all Texas for that matter, will swing back toward normalcy and profits.

Kelly Truck, Free of Hare's, Organizes Own Sales Force

Springfield, O., Jan. 14—Severing its sales connection with Hare's Motors Corp., the Kelly-Springfield Motor Truck Co. is organizing its own sales force and is preparing for a big increase in business during the year 1922.

General Manager E. O. MacDonnell has announced that the company's sales organization is about completed.

The following sales representatives have been appointed: Middle west, Pearl A. Lewis, of Springfield, O.; south, P. W. Maguire, headquarters at Atlanta, Ga.; Pacific coast and district manager, Clifford N. Snow, formerly of the Selden Truck Co., headquarters at San Francisco, Cal.; eastern district, J. W. Dyson, formerly in charge of the sales department of Link Belt Co. headquarters at New York City; New England district and branch manager at Boston, P. S. Aultman; district branch manager for Illinois, western Michigan, Minnesota and Wisconsin, A. H. Gibbons, headquarters at Chicago; district branch manager for Kansas, Iowa, Missouri, Oklahoma, North and South Dakota, B. J. Saunders, headquarters at Kansas City, Mo.

Discussing the future prospects of the company and its facilities, General Manager MacDonnell said: "With strong financial backing, splendid factory facilities for large production and excellent line of trucks, which are being continually improved to keep pace with modern automotive developments and extensive plans for the future, the Kelly company, as one of the five large manufacturers of motor trucks of high quality, is looking forward to a successful year."

AMERICAN CAR'S NEW WHEEL

New York, Jan. 16—American Car & Foundry Co. has organized an automotive wheel division for the manufacturer of disk and wire wheels for passenger cars, and a line of wheels for trucks, in the Russell avenue plant, Detroit.

S. A. E. Names B. B. Bachman of Autocar as New President

Annual Meeting Hears Reports From Heads of All Divisions —Other New Officials

NEW YORK, Jan. 16—At the annual business meeting of the S. A. E. there were presented reports on automotive research, progress in aviation, international affiliation of engineers, finances, membership, meetings and section activities, among other subjects. The report of the standards committee was approved in the form submitted. President David Beecroft spoke on the Status of the Engineer in Automotive Economics, and President-elect B. B. Bachman spoke briefly on current problems of the automotive engineer.

The tellers of election announced that canvass of the ballots cast by mail vote had resulted in a practically unanimous election of the following officers: President, B. B. Bachman; first vice-president, J. V. Whitbeck; second vice-presidents, F. E. Watts, H. E. Morton, O. W. Young, V. E. Clark and C. B. Segner; treasurer, C. B. Whittlesey; councilors, Lou R. Smith, C. F. Scott, H. M. Crane and W. R. Strickland.

President-elect Bachman, who has for many years held the position of chief engineer of the Autocar Co., has served as chairman of the standards committee, and has been actively interested in the work of the society almost from its inception. He has been an officer of the society and as such a member of the council for several years past, and was at one time chairman of the Pennsylvania section.

CLOSE ROADS TO TRUCKS

San Francisco, Jan. 13—The board of supervisors of Contra Costa county, lying directly across the bay from San Francisco, and one of the large and heavily populated counties of the state, has adopted an ordinance closing four of the principal main highways of the state to motor stage, motorbus and motor truck traffic.

NEW DAVIS SIX

Richmond, Ind., Jan. 13—The Davis Motor Car Co. will bring out a smaller six-cylinder model some time in March or April.

1921 Shipments Shown by Months

	Carloads		Driveways		Boat	
	1920	1921	1920	1921	1920	1921
January	25,057	6,485	29,283	3,185	.....	93
February	25,505	9,986	43,719	7,507	.....	99
March	29,326	16,287	57,273	9,939	.....	75
April	17,147	20,187	64,634	14,197	.....	1,619
May	21,977	18,608	74,286	15,193	.....	2,381
June	22,516	20,269	60,746	18,834	8,350	3,947
July	23,082	19,470	52,342	15,320	8,702	3,725
August	23,386	20,350	34,060	14,290	7,095	3,565
September	20,804	20,150	24,431	13,550	5,469	3,580
October	17,209	17,323	14,127	11,257	2,519	.....
November	13,253	14,061	9,497	10,509	659	1,385
December	11,802	12,100	6,469	7,500	89	134

Earl Motors Inc. Secures Financial Aid in Chicago

Bankers and Creditors Agree on Plan for Future Successful Operation of Company

CHICAGO, Jan. 14—Following a day and night meeting of the banking and merchandise creditors of the Earl Motors, Inc., a plan for the refinancing and rehabilitation of the $8,000,000 corporation, which was the outgrowth of the old Briscoe Motor Co., Jackson, Mich., has been agreed upon. The reorganization of the company was made necessary by the troubles of the Fort Dearborn banks and Edward Tilden & Co., which had undertaken to finance the new company but was unable to do so.

The reorganization of Earl Motors will place the company in fine shape financially, but the stockholders will have to depend largely upon the future success of the company for their equity in the concern. The business will be continued with the present staff of officials but under the guidance of a creditors' committee.

At present Earl Motors has in excess of $3,000,000 in unsecured indebtedness. it has outstanding $2,100,000 of debenture bonds, $1,500,000 of preferred stock, and about 291,000 shares of common stock of $10 par value. The debentures and 91,000 shares of common stock represented the holdings of Edward Tilden & Co.

While the plan of settlement agreed upon last night will undoubtedly go through, the final formula for stock issue is not absolutely settled.

The financial reorganization contemplates a new issue of deferred debentures, on which interest will be deferred for a year, and a new issue of prior preference preferred stock. The unsecured creditors will be given these debentures and the new stock in satisfaction of their claims.

Edward Tilden & Co. is to surrender the present debentures, receiving in exchange $1,400,000 of prior preference preferred stock and $700,000 in new debentures. The creditors may receive debentures and stock in equal proportions. The banks are to furnish the company with $1,000,000 or more for working capital.

The new debentures will probably be long term maturities, whereas the present securities mature $500,000 each year. This plan which was agreed to by creditors representing claims of $2,000,000, will enable the company to retire the debentures without payment of interest on the new ones for a year and will also enable the payment of all current liabilities.

The creditors' committee named to carry out the plans consists of Ralph Van Vechten, vice president of the Continental-Commercial Bank, Chicago; Percy Johnston, president of the Chemical National Bank, New York; R. T. Forbes, vice president of the Fort Dearborn Bank, Chicago; William Sparks, president of Sparks-Withington Co., Jackson, Mich.; Benjamin Gotfreidson, president of the American Auto Trim Co., Detroit; W. V. Jackson, vice president Auto Body Co., Lansing, and Charles Hayes, president of Hayes Wheel Co.

Nash Rates 1922 Business Four Times Harder Than '21

New York, Jan. 16—Four calls in 1922 for one in other years, were urged by President C. W. Nash, of Nash Motors Co., upon his dealers at their annual meeting, as necessary to keep sales where they should be. The business is there, he said, but harder work and more intensive effort is necessary to develop it.

To keep the "used car evil" from being an evil, he urged dealers to get together and cease permitting owners to play them against the other in buying a new car. Better to have a new car in the show room than a bunch of junk in the back yard. Slim profits for a while will keep dealers in business over the hard times, he said, and they will be ready to reap the big money when ordinary business times come.

J. J. Storrow, chairman of the board, told dealers that the company could readily be raised from seventh to fourth place in the industry in a hard year with a little expenditure of effort. Hard years are best to thrive in if the effort is put forth. The inventory, he said, could be turned over six times with good business and he urged consistent, intelligent zeal.

LOCOMOBILE OFFICIALS RETURN

Bridgeport, Conn., Jan. 14—Revival of prosperity and extensive development of business at the Locomobile Co. plant here is indicated this week in recall of four former officials of the concern. The four returned to active duty here this week.

B. G. Roos becomes chief engineer under the new regime.

The others who have returned to the local corporation and their asignments are: E. A. Travis, general sales manager; Clinton B. Amorous, New England manager, with headquarters at Boston, and W. S. Porter, in charge of the Chicago branch.

TRACTOR DISTRIBUTOR SUIT

Annawan, Ill., Jan. 14—Claiming the fraudulent manipulation of property, four creditors of W. H. Holzinger, tractor distributor of Annawan, Ill., filed a petition in bankruptcy against him in the Federal court. His liabilities were listed at $515,969, of which $170,000 is in secured claims and the remainder in unsecured claims. He has known assets of $347,100, according to the petitioners. The State Bank of Annawan is one of the leading creditors to the extent of $100,000 for money loaned.

Dealers of Character Will Do Big Business, Says Moock

Thinks Price Cuts and Other Lures Will Not Attract Buyers As of Old

NEW YORK, Jan. 16—Price reductions are not going to sell automobiles this season, according to Harry G. Moock, general manager of the National Automobile Dealers' Assn.

"Price cuts, new models, hot spots, gear boxes and any other socalled features, are not the things that will bring buyers into the market this year," said Moock. "Mechanical features served their turn when it was a rising market, but the public is not coming back this year for any of those things," the dealers' representative declared. "Something more is demanded this year."

"As I view it, the market this year is going to consist of about 150,000 new buyers; that is, persons to whom owning an automobile will be a new thing, and the balance will be replacements.

"The replacement market is going to be dominated by people who have a pretty definite idea, gained by actual experience, with a certain make of car. Some of the replacement buyers are going right back to the dealers who supplied them with a car in the first place. They will go back to the dealer who supplied them a meritorious automobile and who gave them sufficient and reasonably priced service. The car that has not stood the test, the dealer who hasn't stood the test, the factory that hasn't stood the test, will not be given another chance in 1922. The public in 1922 will not buy on a promise. The public has bought for four or five years back on promises, but the public of 1922 is going to buy motor cars that have made actual performance records during those five years. There is going to be a good business for those dealers and manufacturers who kept the promises they made in that five-year period. Those dealers and manufacturers who did not keep their promises during that period are going to have a tough battle for business.

"I do not look for any such business in 1922 as was done by the dealers in 1920. 1922 probably will be as good a year as 1921 for those dealers and factories that are producing meritorious automobiles.

"By that I do not mean necessarily the automobiles that have a great production and are distributed nationally, but I mean those automobiles that have been built right, priced right, and maintained right. Probably some of the smaller factories will have to give up their idea of national distribution and be satisfied to distribute their cars within a limited radius of their factory, which they can do profitably because of the freight rates on automobiles from their factory to various parts of the country. They will

avoid this extra charge in handling their products close to the factory.

"Before the year is over, I expect that a great many factories will be sending automobiles to dealers on consignment and abandoning the idea that they can sell their product sight-draft-bill-of-lading-attached, as they have done in the past. When this is done by the factory, there is going to be a great deal more attention paid by the manufacturer to the personal character of the dealer he selects to represent him in a territory.

"There is going to be plenty of money for the dealer who has character, who is honest, who is a business man, and who is handling a proved automobile. I have had enough conferences with bankers to know that there are half a dozen or a dozen men in every city handling automobiles who have almost an unlimited credit at the bank, but likewise there are scores of dealers in each city who have not such credit facilities and who will be greatly handicapped in the 1922 battle for business.

"Used cars proved a tremendous problem to the entire trade last year. **There is no solution for the used car problem for the trade as a whole. The solution lies in the hands of the individual dealer coupled up with the necessary cooperation on the part of his manufacturer."**

M. A. M. A. ENJOYS FROLIC

New York, Jan. 14—Hundreds of members of the Motor & Accessory Manufacturers' Assn. were summoned Jan. 12 to be present in the High Court of Merriment presided over by Chief Justice Jollity in the person of Sidney S. Myers, in the grand ballroom of the Hotel Commodore. Julius Tannen, who was the original Perlmutter in "Potash and Perlmutter, was the clerk of the court and he ably abetted Myers in the production of merriment.

At the close of the "judicial proceedings" the entire Midnight Frolic show from the Ziegfeld roof was given. The annual entertainment of the M. A. M. A. followed the usual dinner. It was the second year the guests had been entertained by a Midnight Frolic show. There were no speeches and the show was in charge of Myers, assisted by M. Lincoln Schuster, assistant general manager of the association.

SYRACUSE PLANTS ACTIVE

Syracuse, Jan. 14—Automotive manufacturing, which suffered keenly here during the readjustment period, is now coming rapidly into its own again. Plants like the Brown-Lipe Chapin Co. and the New Process Gear Corp., in particular, are running full blast filling large orders for complete vehicle manufacturers.

The stimulation of the automotive and other industrial plants in the city is rebuilding the retail market for automobiles and trucks, which has been in poorer condition here than in most New York state cities of its size and type.

N. Y. Metropolitan District Sales Slump in December

Figures Not Complete for Period, But Show Market Trend at Year's End

NEW YORK, Jan. 14—A falling off in the registrations of new passenger cars in the metropolitan district for the month of December as compared with the preceding month is shown in the figures compiled by Sherlock & Arnold, publishers for dealers of the Automobile Sales Analysis. These figures, however, do not include registrations from Nassau county after Dec. 14, and there are some omissions of new cars in Kings county. Also, on account of some cars being operated on dealers' plates, these registrations have not been included in the December listing.

The summary of the year to date is as follows:

	Approx. below $2500	Approx. above $2500	Total
January	483	145	628
February	1,408	210	1,619
March	3,396	487	3,883
April	4,811	570	5,381
May	5,466	584	6,050
June	6,522	495	7,017
July	5,457	388	5,845
August	4,255	354	4,609
September	4,004	331	4,335
October	3,505	427	3,932
November	2,425	368	2,793
December	785	126	911
Total to date	42,517	4,485	47,003

Scripps-Booth Stockholders Attempt to Protect Equity

Detroit, Jan. 14—An appeal to minority stockholders of Scripps-Booth Corp. is being made by A. M. Smith, of Chicago. Smith asks stockholders to forward name, address and amount of holdings, "so that we can make a program and bring pressure to bear upon officials or cause such investigation and forced action to be taken as will put the company back in its proper position as a profitable investment." General Motors, which is liquidating Scripps-Booth, held 90 per cent of outstanding 60,000 shares of stock at last report.

New York, Jan. 14—Comment on the steps taken by minority stockholders of the Scripps-Booth Corp. to hold up the dissolution program was refused at headquarters of the General Motors Corp. here. It was stated that the subject was in the hands of the corporation's attorneys.

Body Builders Hold First Exhibition With Success

New York, Jan. 17—The Automobile Body Builders' Assn. held its first exhibition at the Twelfth Regiment Armory, Columbus Avenue and 62d street, Jan. 9 to 14. There were 70 exhibits, one-third of which were by commercial and passenger car body building concerns and the other two-thirds by manufacturers of material going into the manufacture of bodies such as cloth, springs, body irons, plywood, etc.

The exhibit occupied the entire floor of the armory, which is a large one and the decorations and layout were very good. Admission was by invitation only and the invitations were sent out to those in the trade who might be interested in bodies or body construction. Body builders represented included H. H. Babcock Co., Bantam Ball Bearing Co., Bender Body Co., Brewster & Co., J. G. Brill Co., Fitzgibbon and Crisp, Highland Body Mfg. Co., Holbrook Co., Hume Body Corp., Martin-Parry Corp., McGuire Convertible Auto Body Co., Metropolitan Body Co., Milburn Wagon Co., Smith Springfield Body Corp., E. J. Thompson Co., Waterloo Body Co., Willoughby Co.

BUS LINE ASSOCIATION

Rochester, N. Y., Jan. 13—Motorbus operators of New York state organized an association here recently, and have established permanent quarters at the Powers hotel. James J. Dadd, of Rochester, was chosen secretary and treasurer of the new organization, while Alan V. Parker, of Niagara Falls, was made president. The vice-president is A. F. Warner, of Watertown. Forty operators from various parts of the state attended the meeting, and the membership will be extended to include the operators of the 200 odd bus lines in this state. The new organization will be known as the Auto Bus Assn. of New York state.

LONG HEADS GROUP PLAN

New York, Jan. 13—To provide a clearing house for the activities of the various groups of manufacturers engaged in the same lines of activity which have affiliated with the Motor and Accessory Manufacturers' Assn., a new branch, to be known as the Group Department, has been established with Hargrave A. Long as manager. Long has been secretary and treasurer of the Automotive Wood Wheel Manufacturers' Assn., which will become the Wood Wheel Group of the N. A. M. A. The headquarters of the Wood Wheel Assn. have been located in Chicago since 1905.

COMPANY ISSUES NEW POLICY

New York, Jan. 14—The Eastern Automobile Underwriters' conference, which takes in the states of New York, New Jersey and Pennsylvania, is offering an optional policy which will mean a material reduction in rates "for the automobile owner who uses care" as contrasted with the careless and irresponsible driver. The new policy is known as a three-quarter valuation and under it the insured will get ¾ of the value of his car if it is destroyed. The rate is 15 per cent less than on the regular policy, and on a ¾ value basis the premium saving will be about 33 per cent.

CONCERNING MEN YOU KNOW

James H. Kane and Daniel P. Buckley, of Wilmington, Del., and former hotel proprietors, have purchased and will operate the automobile business of the F. B. Norman Co.

George L. Booker, former president of the F. B. Stearns Co., New York distributor of the Stearns, has been appointed general sales manager of the F. B. Stearns Co., Cleveland, to assume active duties on Feb. 15.

R. V. Rowan has been appointed supervisor of branches of the Pilot Motor Car Co., with headquarters at Richmond. He acted in a similar capacity with the Buck Co., Studebaker distributor for the Cleveland district and Indianapolis. D. H. Cummins, former president of the Lorraine Car Co., is now Pacific coast representative for the Pilot, with headquarters at Los Angeles... T. L. Bayne, who was with Lorraine when Pilot took over the business is service engineer; William H. Conklin, former Lorraine sales manager, is now manager of the hearse department of the Pilot company.

Wallace C. Hood has returned to the King Motor Car Co. as director of sales after an absence of several years. He was associated with King in 1917 and 1918. Benjamin Stevenson, formerly with Winton Co., is now factory manager for King.

H. D. Little, formerly in the wholesale department of Willys-Overland, Inc., has been appointed divisional sales agent of the Handley Knight Co., covering the central states.

Roger W. Angstman has been appointed sales manager of the Liggett Spring & Axle Co., Monongahela, Pa., and has located offices in the Central Motors Building, Detroit.

H. W. Scholl has been appointed sales manager of the Philbrin Corp., Kennett Square, Pa. He was formerly connected with the Splitdorf Magneto Co., acting in the capacities of salesman, export sales manager and finally sales manager.

J. J. Kennedy, for five years with the Champion Spark Plug Co., in charge of New England sales, has resigned to accept the position as sales manager of Bell Manufacturing Co., Boston, which will market a timer for Ford cars.

Ray F. McNamara announces that he will continue his connection with the Engineering Department of the Maxwell Motor Corporation.

Harry C. Maley, for years in the publishing, merchandising and advertising fields, has sold his interest in the Albee Corp., Chicago, and is now operating an advertising and merchandising business under his own name. Offices have been opened at 30 N. Michigan Blvd., Chicago, Ill.

Charles B. McLaughlin has been appointed district sales manager of the Handley-Knight Company, of Kalamazoo, Michigan.

Herbert L. Jandus, Kalamazoo, formerly with the Standard Parts company, has joined the engineering staff of the C. G. Spring company. He will specialize in the production of bumpers and assist in the development of that department.

Leo F. Goodspeed, vice president of the Checker Taxi Cab Company, Chicago, announces that F. W. Wyttock, an engineer of twenty years experience in the automotive world and recently with the Marmon-Nordyke company, has accepted a position with the Chicago company.

The Stevenson Gear Co., Indianapolis, Ind., announce that W. C. Starkey of Mansfield, Ohio, has been made vice president and director of engineering, and that he will take over the works management of the company's plant.

John S. Krauss, treasurer of the L. H. Gilmer Co., was elected to the office of vice president and general manager. Joseph S. McCulloch, president of the Union National Bank and a director of the company, was named to succeed Mr. Krauss as treasurer.

George P. Hahn, Toledo attorney, has been appointed special counsel for Frank P. Kennison, Col. Francis G. Coffey, and C. O. Miniger, receivers for the Willys Corp., in the suit brought against the corporation by the Ohio Savings Bank & Trust Co., of this city.

Herbert G. Fitch has been appointed manager of the branch of Willys-Overland, Inc., at Boston, Mass. He succeeds W. G. Northrup, who resigned on January 1st to go into another line of the automobile business in Chicago.

Harry H. Anderson has been named assistant general sales manager of the Leach Biltwell Motor Car Company of Los Angeles, according to Roy D. Heartz, recently appointed general sales manager of the company.

I. W. Lanergan, St. Louis, has been appointed treasurer of the R. & V. Knight Motors Company, East Moline, Ill., to succeed Sidney Smith, who recently resigned. The appointment was announced Jan. 1, effective on that date.

President M. A. Holmes and Sales Manager F. D. Engle of Transport Truck Company, Mount Pleasant, Michigan, will have headquarters at the LaSalle Hotel during the Chicago Automobile Show.

J. B. Bartholomew, Peoria, Ill., president of the Avery Tractor company, has been honored by admission as member of the American Society of Agricultural Engineers. The honor was conferred following an address before the society upon the subject, "The Value of Power Farming."

B. F. Wulff, president of the Studebaker-Wulff Tire Company, addressed a meeting of stockholders at Lincoln, Ill. They took stock following an assurance that the company was to open a manufacturing plant there. Later, the plans were changed and Zanesville, Ohio, was selected instead. The Lincoln stockholders now demand the return of their money. President Wulff submitted a proposition for consideration.

A. J. Whipple, general sales manager of the Republic Truck Sales Corporation, of Alma, Mich., has resigned.

Raymond H. Hudson, manager of the methods and personnel department of the Holt Tractor Manufacturing Company, East Peoria, Ill., has resigned to go to Washington, D. C., to enter the Department of Commerce under Herbert Hoover. Officers of the Holt company gave a farewell dinner at the Creve Coeur club in honor of the retiring member of the staff.

Walter B. Clark has been made general works manager of the Bridgeport Brass Co., Bridgeport, Conn. Arthur Brewer, chief engineer, is made works manager of the mills products division, succeeding Clark and E. R. Feicht succeeds Brewer as chief engineer. Warren D. Blatz is general sales manager.

Charles W. Hadden, manager of foreign sales for the Minneapolis Steel & Machinery Co., of Minneapolis, has resigned his position with that company. Hadden goes to the Maxwell Motor Corporation as assistant to president W. B. Wilson.

Fred H. Kurz, winner in sales contest of the Seattle Dodge distributors, as a reward for his services, is visiting Dodge Bros. factory in Detroit. W. L. Eaton Co., Seattle, employs Kurz.

C. J. Ernst has been appointed to succeed George C. Lowe, who recently retired from the sales organization of Miller-Lowe Tire Co., Seattle.

W. H. Stackhouse has been appointed general manager of French & Hecht's Davenport, Ia., and Springfield, O., branches.

Guy P. Yount, branch manager of the J. I. Case Threshing Machine Co., at Des Moines, Ia., died Dec. 28, 1921, after being ill only a few days with pneumonia. He was buried at Des Moines.

Ralph Hall has been appointed sales manager of the Chillcott-Nash Co., Seattle. Hall was formerly editor of the Seattle Post-Intelligencer.

John Lottridge, formerly president of the Atlanta Automobile Association, has severed his connection with the Charles W. Tway Co., Atlanta, Haines distributors, and joined the Willys-Overland branch at Philadelphia. Lottridge was formerly dealer for the Marmon and Jordan in the Atlanta territory.

Donald Johnson, of the Stewart-Warner Accessories of Canada, before leaving for the west, stated that his company has enjoyed the best year of its history. His mission is to open a branch at Calgary "to cope with demand."

S. X. Newman, who recently severed his connection with The Automatic Safety Tire Valve Corporation, has been appointed Director of Sales for Edward V. Hartford, Inc., New York City, makers of Hartford Shock Absorbers, Hartford Spring Bumpers and Hartford Auto Jacks.

R. L. Harpham has been made manager of the Columbus branch of the Firestone Tire & Rubber Co. He has been connected with the company for 15 years and was manager of the Philadelphia branch at one time.

MARKING ACT SUSPENDED

Ottawa, Ont., Jan. 14—The Canadian Marking Act, calling for all imported goods to be marked with the name of the country of origin and which was to be in effect Dec. 31, 1921, has been suspended until after the close of the next session of parliament by order-in-council.

Weston Is Elected Head of R.A.A. Tire Makers' Division

Members Approve Dealers' Warranty and Discuss Standardized Tire and Rim Sizes

NEW YORK, Jan. 14—J. C. Weston, of Ajax Rubber Co., Inc., was elected chairman of the Tire Manufacturers' Division of the Rubber Association of America at the annual meeting last week. J. V. Mowe, Kelly-Springfield Tire Co., was elected vice-chairman. Companies elected to the executive committee are:

Brunswick-Balke-Collender Co., Firestone Tire & Rubber Co., Fisk Rubber Co., General Tire & Rubber Co., B. F. Goodrich Co., Goodyear Tire & Rubber Co., Hewitt Rubber Co., Hood Rubber Products Co., Kelly-Springfield Tire Co., Lee Tire & Rubber Co., Michelin Tire Co., Miller Rubber Co., Norwalk Tire & Rubber Co., Pennsylvania Rubber Co., Swinehart Tire & Rubber Co., United States Tire Co.

Approval was given to proofs of a poster setting forth the new dealer warranty as fixed recently by the division, and these will be sent forward at once to dealers everywhere. Standardized tire and rim sizes upon which the technical committee of the division is working with committees of the National Automobile Chamber of Commerce and the Society of Automotive Engineers were discussed, but no action taken.

Experience of manufacturers with the new service charge on returned goods were discussed, but no change was suggested in the present plan.

H. T. Dunn Reelected Head of American Rubber Assn.

New York, Jan. 14—H. T. Dunn was reelected president of the Rubber Assn. of America at the annual meeting. Horace De Lisser, chairman of the board of the Ajax Rubber Co., was elected first vice-president, and W. C. Rutherford, vice-president of the B. F. Goodrich Rubber Co., second vice-president.

Seneca G. Lewis, of the Pennsylvania Rubber Co., J. H. Gunn, of the United States Rubber Co., and John S. Lowman, of the Philadelphia Rubber Co., were reelected directors, and J. W. Thomas, Firestone Tire & Rubber Co., and E. G. Wilmer, Goodyear Tire & Rubber Co., were named new directors to serve three years. A. L. Viles is general manager.

A resolution was adopted abolishing the associate membership class, composed of executives of companies holding membership in the association.

HEARNE AGAIN NUMBER ONE

Indianapolis, Jan. 14—Eddie Hearne will again have the honor of carrying the numeral one on his car in the tenth annual 500-mile sweepstakes on the Indianapolis motor speedway May 30, the same number he carried in 1921.

Annual Dinner of N.A.C.C. Draws Industry's Leaders

Secretary of Navy Denby Is Given Royal Reception as Speaker; Cobb Also Popular

NEW YORK, Jan. 16—More men prominent in the automotive industry attended the annual dinner of the National Automobile Chamber of Commerce in the grand ballroom of the Commodore Jan. 11 than ever were present at a similar event. A list of the names of the manufacturing executives at the tables would read like a roster of the industry.

Not only was the dinner a complete success in point of attendance, but in every other respect as well. The speakers were Edwin Denby, secretary of the navy, formerly an officer of the Denby Motor Truck Co. and the Hupp Motor Car Corp., and Irvin S. Cobb. Colonel Charles Clifton, president of the N. A. C. C., presided as toastmaster. Among those seated at the table of honor were:

J. K. Robinson, president, Manufacturers' Aircraft Assn.; C. W. Nash; William E. Metzger; George C. Diehl, president, American Automobile Assn.; A. R. Erskine; Alvan Macauley; E. H. Broadwell, president, Motor and Accessory Manufacturers' Assn.; J. Walter Drake; H. H. Rice, treasurer, National Automobile Chamber of Commerce; Gordon Lee, United States Department of Commerce; Windsor T. White; Roy D. Chapin; Charles Clifton, president, National Automobile Chamber of Commerce; C. C. Hanch; Captain Carl T. Vogelsang, U. S. N., commandant Brooklyn Navy Yard; A. J. Brousseau; Pierre S. DuPont; W. L. Hughson, vice-president, National Automobile Dealers' Assn.; Fred J. Haynes; H. F. Dunn, president, Rubber Assn. of America; H. M. Jewett; Thomas H. MacDonald, director, United States Bureau of Public Roads; John N. Willys; David Beecroft, president, Society of Automotive Engineers; R. E. Olds; W. A. Woods, New York Automobile Dealers' Assn., and Harry Ricardo.

It was evident that Denby has lost none of his popularity within the industry and that automobile men regard his selection for the cabinet as a reflected honor. He was given a rousing reception when he arose to speak.

The secretary of the navy paid tribute to the automotive industry for the courage it has displayed during the period of depression, and congratulated it upon the fact that it has come through safely.

Cobb made a characteristic after-dinner speech, but asserted seriously that general acceptance throughout the world of good roads and the use of motor vehicles would do much to break down racial animosities.

ELECTRICIANS TO JOIN M. A. M. A.

New York, Jan. 13—Members of the Automotive Electric Assn. at its winter meeting in the Hotel Biltmore referred a resolution to amalgamate with the Motor and Accessory Manufacturers' Assn. as a group, to a special committee headed by G. Brewer Griffin, which will report to its board of governors' meeting set for April 7.

A. D. Libbey, of the Splitdorf Electrical Co., Newark, was elected president of the organization to succeed Griffin. Other officers were reelected as follows: C. O. Miniger, first vice-president; E. C. Wilcox, second vice-president; R. J. Nightengale, third vice-president; M. W. Bartlett, fourth vice-president; George S. Cole, secretary and treasurer.

November Car Production 106,043; Trucks, 10,000

New York, Jan. 16.—Domestic production of passenger automobiles in the United States for November was 106,043. Truck production was approximately 10,000. The month's total of 116,043 showed a decline of 30,893 from October.

TOLEDO SHOW PROMISING

Toledo, Jan. 13—The demand for floor space at Toledo's fourteenth annual automobile show indicate that it will surpass all of its predecessors in size and splendor. The date for the show has been set for Jan. 23 to 28, and it will be held in the Terminal Auditorium, which provides 40,000 sq. ft. of show space.

It is estimated now that there will be 30 passenger car lines on show, 12 truck displays and a large line of accessories of all kinds.

PEORIA SHOW PLANS DEAD

Peoria, Ill., Jan. 13—The Peoria Auto Dealers' Assn. will hold a week of individual salesrooms displays instead of a big automobile show this spring.

Garagemen and small dealers are to be urged to join the central group during the year, and a special committee is now conducting this campaign. Employment of a paid secretary will follow, and 1922 plans intend to make Peoria one of the best organized and most active dealers' organizations in Illinois.

BIG SPRINGFIELD SHOW

Springfield, Ill., Jan. 13—Third annual auto show of the Springfield Auto Dealers' Assn. will be Feb. 23-25, and plans to make it the most comprehensive and best exhibition are under way. Basil W. Ogg will be show manager, and his advisory committees includes A. J. Doble, Charles H. Edmands and Robert E. Hatcher, Jr.

PORTLAND SHOW

Portland, Ore., Jan. 14.—Portland's thirteenth annual automobile show, the first 1922 show to occur on the Pacific coast this year, is set for Jan. 23 to 28 inclusive. Plans for the big event are complete and all indications are that the show will be one of the largest and most successful ever held in Portland.

Washington Tradesmen Look With Confidence to Future

Replacement Business in All Lines Expected to Be Heavy; Prices to Help

SEATTLE, Jan. 13—The year 1922 is going to be a prosperous one for automotive tradesmen of Washington, according to the annual message of President L. E. Titus, of the Washington Automotive Trade Assn. President Titus' New Year's message said in part:

"With the close of 1921 an opportunity presents itself for a review of the past trend of the automotive industry and for a glance ahead into what 1922 holds in store. It is foolish to deny that the industry during the last 18 months in Washington has had to undergo considerable readjustment. Mistakes made during the prewar period, many of them mistakes in judgment, have borne their fruit, and we are happy to feel that today this period is about over and we are ready for the steady return to normalcy that lies ahead.

"One big element in this adjustment has been the change in prices. Any student of the industry knows that tires today are lower than they were before the war; that batteries are at a low level, and that labor charges have dropped as low as they possibly can.

"The amount of replacements during 1922 will be greater than ever before, while the better and more optimistic feeling generally will be reflected throughout the automobile industry. This is a good time for the merchant to prepare for a heavy year, as advance information on tourist influx indicates that it will flow into the state as never before.

"Speaking for the Automotive Trade Assn., which includes every branch of business in the entire industry, we feel that the public confidence in our business and the higher ideals toward which we are striving foreshadow for us and for the legitimate automobile merchant a big year's business."

QUINCY SHOW IN MARCH

Quincy, Ill., Jan. 13—Quincy Auto Trades Assn. has fixed March 28-April 1 as dates for the annual spring show. The display will be a month later than usual and will permit showing of "big show" exhibits. Effort to make Quincy 100 per cent in the state automobile association is undertaken this month.

At the recent annual meeting the following officers were chosen: President, George Thompson; vice-president, Thos. M. Beatty; secretary, William F. Gibbs; treasurer, Oscar G. Mull.

JACKSONVILLE TO SHOW

Jacksonville, Ill., Jan 14—The Jacksonville (Ill.) Automotive Dealers' Assn. selected the week commencing March 27 as the date for holding its show.

Hupp Motor Car Corp. Enters 1922 With 30,000 Schedule

Tentative Production Double That of 1921; No Price Changes; 1400 Dealers

NEW YORK, Jan. 14—The Hupp Motor Car Corp. has entered 1922 with a tentative production schedule of 30,000 cars, which would be double the production of last year. No price changes have been made and none are contemplated. The main factory of the company in Detroit has been enlarged and many improvements have been made in the branch plants, which include the Detroit Auto Specialty Co., the American Gear & Mfg. Co. at Jackson and the H. & M. Body Co. at Racine.

A. C. Hutchinson, general sales manager, who was here for the New York show, announced that the dealer organization, which now numbers 1250 and 90 distributors, will be increased to 1400 dealers. A scientific analysis of automobile registration in every county in the United States compared with Hupp sales in each county has been made by Hutchinson, and the allotments to dealers are based on this analysis. This has inspired a feeling of confidence within the dealer organization that no favorites will be played and that every man will be treated with absolute fairness. This spirit was reflected in a resolution adopted by the dealers at their recent convention in which appreciation of the company's policy was expressed.

Domestic sales of the Hupp company in 1921 are said by Hutchinson to have been been 92½ per cent of the domestic sales for 1920, which was the biggest year the company ever had.

WHEEL PATENT SUIT DECISION

New York, Jan. 14.—The federal district court at Richmond, Va., has decided against the Wire Wheel Corp. of America in its suit against the Budd Wheel Co. and also against the defendant on a counter claim. The suit was based on the Pugh patent No. 1,030,428, which covers the punching of rim sockets in wire wheel rims. In reference to one contention the court held that the defendant was not infringing inasmuch as it had eliminated one step in the operation. On a second claim the court held that if it accepted the plaintiff's view the device would not have been patentable as it was covered in the old Frayer racing cars of 1905 and 1906.

The counter claim was based on the reissue of the Lindsay patent No. 14,461 covering a demountable wheel with a special type of axle. It was held that this was no invention over the earlier British patent to Pugh.

PASS OVER GRAHAM RESOLUTION

Washington, Jan. 13—On request of Senator Curtis of Kansas, the joint resolution imposing a duty of 90 per cent on all goods exported from the United States for the use of the American Expeditionary Forces and its allied forces which have been sold to any foreign government or person when reimported to this country, was passed over in the senate Jan. 6. This bill is known as the Graham resolution, and was prepared in response to protests from American automobile dealers and manufacturers against unfair competition by speculation in surplus motor vehicles, principally trucks. An effort will be made to take it up at an early date.

MILBURN RESUMES ELECTRICS

New York, Jan. 14—The Milburn Wagon Co. has resumed production of electric trucks which was suspended in 1917. It is producing the chassis for half-ton and one-ton models.

A complete line of bodies will be provided and purchasers will be given their option on a complete line of batteries. Persons to whom the trucks are sold will be supplied with the battery best fitted to their needs. In order to study these questions and give expert advice to fleet owners and individual purchasers the company has engaged the services of W. L. Lindsell, of Detroit, a transportation engineer.

Sales of the delivery wagons will be handled by the Milburn passenger car dealers and others who will be added to the organization from time to time.

TIRE OUTPUT LOWER

New York, Jan. 14—A decrease in production of pneumatic casings is reported for November by the Rubber Assn. of America. The decline, however, is only about 175,000, with a total output of 1,756,555. The falling off in shipments was from 1,675,169 in October to 1,342,519 in November, and inventories increased from 3,545,030 in October to 3,908,342 in November.

Production of inner tubes declined from 2,843,918 in October to 2,126,211 in November. Shipments fell off from 2,016,371 in October to 1,540,299 in November. Inventories increased from 4,732,016 in October to 5,203,568 in November.

ELIMINATE 33 BY 4½ RIM

New York, Jan. 14—At the instigation of the Tire and Rim Assn., the tire executive committee of the rubber committee has concluded to eliminate the 33 by 4½ in. rim as original equipment for motor trucks from the schedule of perpetuated sizes. All interested parties are to be notified to that effect.

The basis for this action is the belief that the 34 by 5 in. rim and tire is taking the place of the 33 by 4½ in.

CANADIAN SALES GOOD

Toronto, Jan. 14.—Dealers and distributors are practically unanimous in reporting new car demand good, collections slow and the used car situation execrable. Almost without exception, the fall and winter to date have yielded much more business than a year ago and considerably more than anticipated.

Old Timers Prove Worthy Sailors on First Cruise

Pioneer Members of Industry from All Over the Country Attend the Annual Dinner

NEW YORK, Jan. 14—The first annual cruise of the Old Timers' Club took place on the S.S. Flotilla, Jan. 9. In spite of the fact that the old members of the industry are not on the whole seafaring men, it was voted such a success that future annual banquets will probably also take the form of cruises. The 400 Ancient Mariners of the industry who were present had previously voted that anyone attempting a speech would be "keel-hauled," so that there was no effort made in this direction and the evening was given over to good fellowship.

Old members of the industry from all parts of the country, with a very liberal sprinkling of Pacific coast representatives, were on board. It was interesting to note that the cruisers were from all branches of the industry, engineers joining in the chanties with dealers, jobbers and manufacturers and all declaring themselves good shipmates regardless of the weather that the good ship will encounter during the coming years.

TRADE ASSOCIATIONS MERGE

Atlanta, Ga., Jan. 14.—The Atlanta Automotive Equipment Assn., composed of wholesale and retail dealers, and the Atlanta Automobile Assn., composed of motor car and truck dealers, have merged interests, the new organization being known as the Atlanta Automobile Assn. The merger was effected at a joint meeting Jan. 11.

The association has adopted a code of ethics and business practices established for the purpose of eliminating from the trade those who prove unfair or unjust to the automobile-buying public, and special attention will be given to this work during 1922.

RACING LEAGUE PLANNED

Wilmington, Del., Jan. 13—An automobile racing league is planned for Wilmington, Philadelphia and Pottstown, Pa., Paterson and Bridgeton, N. J., and Baltimore, Md. Preliminaries have been discussed and sentiment is being sounded out. It is proposed to have two racing teams represent each city in the league and to have races every third Saturday for prizes and a championship trophy.

NERACAR SHOWS AT HOTEL

New York, Jan. 14—One of the exhibits at the Hotel Commodore was the Neracar, manufactured by the Ner-A-Car Corp. of Syracuse. It is a motorcycle rather than an automobile and the price has been fixed at $225. The company expects to produce 3,500 in the first six months of 1922.

BUSINESS NOTES

C. A. Swinehart, sales manager of the Victor Rubber Co., Springfield, O., following a conference with branch managers and representatives, announced that the company expected to increase its tire sales again this year on a scale with last year's when sales were 60 per cent more than 1920.

Diamond Rubber Co., Akron, O., has added a new cord tire to its line which, it is said, has special road gripping powers against side, forward and back skidding.

Metal Specialties Co., Chicago, announce that they have added the Jorgenson Vapor Primer to their line of Presto products, which was formerly manufactured by the Jorgenson Co. of Waupaca, Wis.

Splitex Radiator Co. have sold their assets to the Metal Products Co. of Racine, Wis.

Wayne Oil Tank Co., Ft. Wayne, Ind., will erect a $75,000 office building.

Moon Motor Car Co. declared the regular quarterly dividend at a meeting of the board of directors on Dec. 29.

Calvin C. Miller and Joseph Lowman, stockholders in the Burdick Tire and Rubber Co., a Delaware corporation, have asked for a receiver for that firm in a complaint filed in the federal court at Indianapolis, where there is a branch of the firm.

National Mfg. and Sales Co. of Greensboro, N. C., have filed a copy of the certificate of incorporation with the clerk of the Superior court here.

The Black & Decker Mfg. Co., builders of Portable Electric Tools, announce that, effective January 3, 1922, they will make a freight allowance on shipments of 100 lbs. or over to points in the United States and Canada.

The Kalamazoo Motors Corp., Kalamazoo, Mich., is offering $250,000 of first mortgage 7 per cent bonds maturing in five years. It will furnish capital required for an expansion of the company's business.

The National Mac-Core Motors Corp., Kalamazoo, Mich., has received an order from the Checker Taxi Cab company, Chicago, for 1,800 motors. Production is to start immediately.

Swartz Electric Co., Indianapolis, is declared ready for the receiver by two petitions filed in the Superior Court here by Eli Maybe and Oliver M. Thornburg.

Goodyear Tire & Rubber Co. will open a branch in Davenport, Ia., carrying a stock of $50,000.

Thermos Mfg. Co., Davenport, Ia., has opened a factory for the production of spark plugs, with a capacity of 1,000,000 a year.

Alabama Auto Co. has just closed a lease for the Dreyfuss Candy Co.'s building in Montgomery, which they will remodel.

Automotive Parts Co., Springfield, O., has secured exclusive rights of the entire state for the operation of parts stores for Continental motors and other well known parts companies, according to announcement made by H. G. Root, president of this company, and also of The H. G. Root Company. Steps are being taken to open stores in several of the larger cities. The name of the Automotive Supply Company was recently changed to that of The Automotive Parts Company. It handles the wholesale business of The H. G. Root Company, auto tires and general automotive supplies. Hereafter the Root Company will handle both the retail and wholesale business, while the new company will handle auto parts for Springfield and the entire state. Larger quarters have been obtained for the extension of the business. H. G. Root is also general manager of The Westcott Motor Car Company.

Circle Supply & Machinery Co., a new firm in New Orleans will open its offices and warehouse soon. It will deal in supplies and accessories and has secured the wholesale agency for many of the large manufacturers.

The Wall Pump & Compressor Co., Quincy, Ill., have added to their line of vacuum pumps a complete line of air cooled single stage compressors and a line of air-cooled two-stage compressors.

An Export Combine involving 130 companies which do a domestic business of over one billion dollars annually, was considered by the automobile makers at the Export Manager's Convention of the National Automobile Chamber of Commerce, held in New York, Jan. 10.

The combine, as proposed by G. F. Bauer, Secretary of the N. A. C. C. Foreign Trade Committee, would enlarge credit resources and lower the overhead cost of foreign trade in cars and trucks.

Birmingham Motors of Canada, Ltd., is being incorporated with a Dominion charter. A plant has been acquired at Peterboro, Ontario, which is to be enlarged. Here, it is said, production will start in the near future on the Birmingham flexible axled "six" for the Dominion and other national markets in the association of the British nations.

Oak Tire & Rubber Company, Ltd., of Oakville, the Red Arrow Tire Company of Peterboro and the Tiger Tire Co. of Belleville, all will extend their plants in the near future. The former company announces that it is two months behind in deliveries, has just completed its most successful year, is running night and day and will double its plant construction to start in the near future.

Perin B. Monypeny, president of the Columbus Body Co., applied for a receiver for his company and L. Neal Blacker was appointed to look after the solvent Columbus, O., corporation.

Gotfred-Joyce Corp., of Windsor, makers of G. & J. trucks, are building a large two-story factory branch in Toronto.

United States Automotive Co., Connersville, Ind., will shortly bring out an issue of $1,750,000 bonds, bearing eight per cent interest, through Harvey Fisk & Sons, Inc., New York.

Gray Dort Motors, of Canada, Ltd., makers of Gray Dort cars, opened their new sales service and office building in Toronto this week, with a fashion show feature.

Standard Car Taken Over by New York Capitalists

New York, Jan. 14—The automobile branch of the Standard Steel Car Co. has been taken over by a syndicate of New York capitalists headed by Don C. McCord, who has been vice-president of the Bankers Commercial Security Co. Associated with him are the New York Trust Co., the Liberty Industrial Corp. and individuals connected with the Standard Steel Car Co.

WILLYS FOSTORIA PLANT OPENS

Toledo, Jan. 13—The Fostoria plant of the Willys Corp., which was closed 10 days for inventory, has reopened and will probably increase its working force within the next few months. Sixty men were placed at work when the plant reopened.

FOR FRONTENAC PRESIDENT

New York, Jan. 14.—William M. Thompson, president of the Stutz Motor Car Co., has been mentioned as the possible president of the Frontenac Motor Car Co., incorporated under the laws of Delaware for $1,000,000, to produce the new Frontenac. Thompson is the latest acquisition to the forces backing the production of the car, chief of which is Allan A. Ryan, the dominating figure in the Stutz organization.

Both Detroit and Indianapolis have been mentioned as likely sites for the factory, denial being made, however, that the car will be produced at the Stutz plant. Other than the association of Thompson and Ryan in the new company it is stated that there is no connection between the two organizations.

Identical Information to Govern at Chicago Show

Fact-Proved Answers Will Follow Stock Questions in Latest Approved Plan

CHICAGO, Jan. 14—Training of salesmen to tell the same story to the public in their conversations in exhibits at the show has been undertaken by the Chicago Automobile Trade Assn. The association staff has undertaken the development of ten or twenty questions which the public, or portions of it, may be expected to ask salsemen while inspecting cars at the show. Then logical answers to the questions will be worked out and the questions and answers will be furnished salesmen of distributors and dealers handling exhibits at the Chicago show.

It is planned to have one of these salesmen, under the direction of other dealers and salesmen, study these questions and answers from now until show time. On Friday evening preceding the opening of the show there will be a meeting of all executives and salesmen who will handle exhibits when the questions will be gone over and means taken to assure that the answers, no matter in what exhibit a prospect may happen to be, will be virtually identical.

In the past, and particularly last year and years with price reductions of different percentages affecting products of various industries, there has been a wide variation between the stories of salesmen talking with prospects, not only at the show but in their individual solicitations. The Chicago idea, which is likely to be taken up elsewhere, will disseminate identical information among all salesmen regarding important questions affecting the industry, and it is expected that the telling of an identical story will help to build public confidence in the 1922 cars and their values.

FOSTER PATENT VALID

New York, Jan. 14—In a patent infringement suit brought by the Westinghouse Electric & Mfg. Co. against the Sims Magneto Co. based on the Foster patent No. 108731, the Federal district court for New Jersey has held that the patent is valid and infringed. The patent covers a device for starting a motor in which the gear on the motor is meshed with the flywheel.

The Sims Magneto Co. was charged with contributory infringement inasmuch as it was making the equipment for the Maxwell Motor Corp.

GMC TRUCK PLANT OPENS

Detroit, Jan. 14—The General Motors Corp. truck plant at Pontiac has resumed operations after the holiday inventory period. The schedule calls for an output of 25 trucks a day, most of which will be of the lighter models.

IN THE RETAIL FIELD

Bradley University, Peoria, Ill., has opened a twelve week tractor instruction school. C. M. Hewitt is in charge. Young farmers comprise the bulk of the students. The building reserved for this school is of two stories and has 6,000 feet of floor space. A number of the leading makes of tractors are utilized. Each student devotes two hours daily to class and book work and five hours per day to practical work in the shop. Tractors are taken apart and re-assembled. Only fifty students can be accommodated and the list of applicants is longer than the school can accept. A number of aeroplane engines are also utilized in giving instruction in gasoline power.

The Cordele, Ga., Buick Service Station, one of the largest and best equipped repair shops in this part of Georgia, was totally destroyed by fire Jan. 3, loss to the building and stock amounting to about $100,000. Twenty-six automobiles stored in the station were destroyed. Insurance covers a large part of the loss.

Tenants of Motor Row on Fifth Avenue, Moline, Ill., have formed a club for mutual betterment. Carl Mutter was elected president and F. Shattick, secretary. All kinds of automotive firms are represented and there will be periodical meetings to discuss subjects of importance to the men engaged in the industry.

The Holt Tractor Co., East Peoria, Ill., has closed for inventory. It is expected that the suspension will not exceed a few weeks.

Paige Detroit Motor Car Co., has established a wholesale factory warehouse at Atlanta, Ga., with B. J. Rector as manager. A complete stock of cars and accessories will be carried.

The Carolina Nash Motors Co., Charlotte, N. C., distributing plant here will be taken over by the Nash Motors Co. factory at Kenosha, Wis., according to reports in automobile circles. D. Dowling, who has been in charge of the distributing branch in Charlotte, with the two Carolinas for his territory, will retire from his association with the company.

Geo. Ryskamp, Presto-O-Lite distributer in Santa Barbara, Cal., has taken over new quarters built to their design.

Paul R. Christopher has been appointed distributor for the R. & V. Knight car in the Macon county territory, with headquarters at 542 Main street, Decatur, Ill.

W. L. Eaton, distributor of Dodge Brothers motor cars in Seattle, attended the New York Automobile Show and the Dodge Brothers dealers, convention held during it. He was accompanied by Hugh Higgenbotthem, district factory representative of the Dodge Company.

William, David and Thatcher Shellabarger, Decatur, Ill., three brothers, have purchased from L. C. Shellabarger a garage in that city for $75,000. It is planned to make extensive alterations costing $10,000 to provide larger office and accessory space. The father of the three sons founded the business in 1913 and has vastly developed it until it has grown into one of the largest in central Illinois.

C. W. Avery and Frank Neilsen have leased the quarters formerly used by the Summit Motor Co. of Seattle, and will be northwest distributors for Ace cars.

Ninemiers & Compton, Colfax, Ill., have sold their garage to Thedens & Banker, late owners of a garage at Anchor, Ill. The new owners will be distributors of the Dodge Bros. car.

Peter B. Olney, referee in the alleged bankruptcy of the A. M. Sweyd Co. of New York, announces that the company proposes to offer its creditors 25 per cent in cash and the balance of debts in installments.

Lawrence Smith, Anchor, Ill., has sold his interest in the garage of Reicks & Smith, to his partner, who will continue the business alone. Smith will now open a garage and Ford sales agency in the building vacated by Thedens & Banker, who have removed to Colfax.

Richard M. Decker Co., Chicago, are now located in their new factory, 3207 Shields Ave.

C. A. Starr, Decatur, Ill., distributor of the Ford car, has installed a radiophone in his garage where patrons may hear wireless reports. The aerial upon the building has a sweep of 125 feet and a height of 70 feet. The receiving instruments have a range of 2,500 miles. He believes that the radio outfit will prove an effective advertising device. It is probably the first installed in a public garage in Illinois.

Parker & Deetz, Decatur, Ill., distributor of the Haynes car, have decided to open an accessory branch. A complete line of lubricating oil, will be a feature.

Beeland-Conrad Motor Co. has been organized and incorporated at Macon, Ga., with $10,000 capital, to establish an automobile agency. W. J. Beeland, W. Porter Conrad and T. C. McNeill, all of whom are well known in the automobile business in Macon, are the incorporators.

W. S. Jewell, who has been connected with the Detroit factory of the Studebaker Corp., has been made manager of the Columbus branch of that company, succeeding Price P. Kinney, who goes to Buffalo to have charge of that branch.

West Point Motor Co., Studebaker distributors, I. T. Green, Overland and Willys-Knight dealer, and Renu Tire Shop and Herbert Lipham's service station at West Point, Ga., were all destroyed by fire on Jan. 9. The loss amounts to more than $15,000.

The Columbus Buick Co., has purchased for $185,000 the lot and building on the northwest corner of Broad street and Cleveland avenue, from Frank A. Purdy, formerly president of the Columbus Oldsmobile Co. The new owners will occupy the new quarters in the near future, moving from 216 East Long St. The new quarters are one of the most complete automobile sales rooms and service station in Columbus.

Lancaster Tire and Rubber Co., Columbus, O., have opened a branch at Atlanta, Ga., with T. J. Buckner as manager.

R. C. Todd & Co., Westcott & Allen distributors, moved into their recently purchased, much more commodious sales and service plant this week. Their former sales and service building has been taken over by the new company handling the Stanley Steamer. After many years, the Stanley Steamer is again represented here.

Conton Ring Co.'s plant at Louisville, O., was totally destroyed by fire, Jan. 10, entailing a loss of about $100,000. The garage of the Louisville Motor Car Co., adjoining the plant, was partly burned.

Big Bankers Prominent at the Annual Dinner of N. A. C. C.

New York, Jan. 14—The interest of big bankers in the automobile industry was evidenced at the annual dinner of the National Automobile Chamber of Commerce. Among those who attended were:

E. R. Stettinius, of J. P. Morgan & Co.; Seward Prosser, president of the Bankers Trust Co.; Percy Johnson, president of the Chemical National Bank; Percy Rockefeller, and Joseph A. Bower, vice-president of the Liberty National Bank.

Other New York banks which had representatives at the dinner were the Chatham & Phenix, the Guaranty Trust Co., the Chase National, the Mechanics & Metals National, the Equitable Trust and the Gotham National.

DEALERS FIGHT TAX INCREASE

Portland, Ore., Jan. 13—Oregon automobile dealers and others in the state will put up a fight against any further taxation which may be aimed against the industry during the coming year and will carry on a strong campaign to overcome what is declared to be an unjust tax burden against the owner of the second hand car in this state. This is the stand that has been taken by the Automobile Dealers' Assn. of Portland and that is concurred in by dealers in all other parts of the state.

Dodge Brothers Will Name Reduced Prices February 1

Report That Touring Car Will Sell for $775 Is Generally Accepted in the Trade

NEW YORK, Jan. 14—Dodge Brothers cars will be reduced in price dating from Jan. 1, but the new prices will be withheld from the public until Feb. 1. President F. J. Haynes made the announcement at the annual luncheon and meeting tendered to dealers during show week, at the Pennsylvania Hotel. The announcement reads:

"Dodge Brothers will announce on Feb. 1, 1922, a substantial reduction in the prices of its cars, effective Jan. 1."

There was much comment among the 1700 dealers attending on the unusual price procedure. The report that the touring car will be priced at $775 was generally accepted. The reason most generally advanced for the unique handling of the reduction is that it will give the factory the use of several millions of dollars for the period ensuing between the time the prices are actually effective and the time the rebate is made to the dealers.

The feature of the dinner, aside from the price declaration, was a playlet written by Montague Glass in which his characters, Potash and Perlmutter, were depicted as Dodge dealers.

HANSON SIX POPULAR

New York, Jan. 13—Location by the Hanson Motor Car Co. of a plant in Detroit for the manufacture of its new light six line and the former Hanson line is held in abeyance pending the outcome of the New York and Chicago shows. Until such time as the capacity of the Atlanta plant is exceeded, all manufacturing will continue to be carried out there.

Much dealer attention was given the light six, which at $995 is the only car in its class below $1,000, at the opening day of the show. With this vehicle the company hopes to open the channels of national distribution to Hanson products. When the company is ready to go into production on this model, officials declare, it will be equipped with the new light six Continental engine.

WARRANT FOR SEVERIN

Oakland, Calif., Jan. 13—A warrant has been asked of the district attorney of Alameda county by Erwin C. Easton, acting commissioner of corporations, for the arrest of H. T. Severin, president of the Severin Motor Car Co. of Kansas City, Mo., and his wife, Mrs. L. M. Severin, on a charge of fraud in the sale of $25,000 worth of stock in the Severin Motor Car Co. Severin and his wife, who were stopping at the Whitecotton hotel in Berkeley, about six miles from Oakland, left that hotel on Dec. 29, 1921, without leaving any address.

Apperson Establishes New Nonstop Records at Beverly

Run Made Under A. A. A. Supervision and Claims Are Made for Six High Marks

LOS ANGELES, Jan. 14—What are claimed to be six new nonstop noncompetitive automobile records have been established by an Apperson car on the Beverly Hills Speedway. One thousand miles were covered in 11:57:57 4/5; 1500 miles in 18:1:52 1/ and 2000 in 24:53:25. The averages were 83½, 83 2/10 and 80 3/10 miles, respectively. The record for 12 hours was 1002½ miles at 83½ miles per hour, that for 18 hours was 1497½ miles at 83½ miles per hour and that for 24 hours was 1928.75 miles at 80 3/10 average.

The previous 24-hour record was 1898 miles and that for 12 hours was 957 miles.

An Apperson Anniversary tourster model equipped with two carbureters double distributers, three-to-one gear ratio and stripped of running boards, fenders, windshield and top, was used. The car was driven by Charles Basle and Douglas Phillips. One hour's driving was through dense fog that slowed the pace. At the end of 21 hours a stop was made for gas, and that used to refill had water in it, so another stop was necessary to drain tank and feed line and refill. At the end of 24 hours one sparkplug was changed but the car covered the entire distance without tire change or replenishing water supply. The run was made under Three A supervision and application has been made to have the records declared official.

VELIE EXPECTS GREAT YEAR

New York, Jan. 14—Velie's greatest year was predicted at the annual luncheon and meeting of eastern and southern dealers in the Astor by Vice President F. E. Bradfield. The company never had reason to be more enthusiastic than now, he said, with a model representing its greatest development and an efficient organization functioning in the factory and field.

Details of the new car were carefully explained, a cut open chassis being exhibited to illustrate the mechanical refinements. Retail sales, he said, would be greatly benefitted through the new cooperative finance plan entered into by the factory, whereby cars could be placed on dealers' floors at rates far below the usual finance company charges.

Durant and Columbia Prices Are Guaranteed to Dealers

New York, Jan. 16—Durant prices were guaranteed to the dealers until July 1, 1922, and Columbia to April 1 by representatives of the factories producing those cars at a meeting luncheon of 55 dealers of the Poertner Motor Car Co., metropolitan distributor.

The Durant announcement was made by M. B. Leahy, general sales manager of the Durant Motor Car Co. of New York. In view of the recent announcement of a proposed price reduction by another manufacturer in the Durant price class the Durant guarantee was regarded as significant.

Leahy told the dealers that the Long Island plant was running on a production basis of 75 a day and that the schedule soon would be increased to 100. He said the Long Island plant would continue to manufacture cars for the Pacific Coast territory until the plant in Oakland got into operation. Leahy also told the metropolitan dealers that production of the new Durant Six would begin in about two weeks.

The announcement of the Columbia price guarantee was made by Colonel William Guy Wall, vice-president and chief engineer of the National Motor Car & Vehicle Corp. of Indianapolis.

A. A. A. Recommends Passage of $100,000,000 Road Bill

New York, Jan. 14—The executive board of the Automobile Association of America, at a meeting today, approved the recommendation of Detroit and Jacksonville conferences for a Federal appropriation of $100,000,000 for national highways and will urge speedy action by Congress to meet highway needs. The money is to be expended over a period of years. Other recommendations by the two conferences were likewise approved.

Ten delegates will be appointed to the American Good Roads Congress meeting in Chicago next week. Recommendation was made that a delegate be appointed to attend a good roads congress to be held in Seville, Spain, in 1922, to allustrate the development of American highways. The project to erect a tri-state bridge at Cairo, Ill., was approved as important to transcontinental travel. The annual meeting was fixed for the latter part of May in Washington.

GUARANTEE SELLS TRADE-INS

Atlanta, Ga., Jan. 14—By giving prospective buyers a 90-day guarantee on every used car purchased on the same basis as the guarantee given on new cars, M. C. McManus, Buick dealer at Cairo, Ga., sold and delivered in five days recently four used cars that had been on his floors for a period of three months. The record is the more remarkable when it is considered that Cairo, Ga., is a small town, and that business the past several months in the smaller Georgia towns has been poor.

NEW YORK CATCHES SUNBEAM

New York, Jan. 14—The Sunbeam Motor Co., Ltd., of Wolverhampton, England, has opened a direct factory branch at 25 West 57th street, this city, with Dario Resta, famous racing car driver, as general manager. The 1922 chassis will sell for $6500.

Government Hides Hand to Open Price Associations

Attorney General Refuses to Comment on Supreme Court Hardwood Lumber Decision

WASHINGTON, Jan. 14—The Department of Justice will not announce in any form a government policy relating to open price associations. This statement was made by Attorney General Daugherty and came as a complete surprise. Previous statements from other government sources had led to the well-defined belief that the government would outline and make public such a policy based on the decision of the Supreme Court in the Hardwood Lumber case. Plainly, the Department of Justice position conflicts with that of the Department of Commerce, which had been seeking to have a government policy fixed and announced, and the statement was made only last week that conferences to this end were under way. It is now a question as to what the effect may be with regard to further cooperation between the Department of Commerce and trade associations which has been supplying it with information. Already this cooperation was lessened somewhat in consequence of the Hardwood decision.

The attorney general, however, said that the Hardwood decision is the most far reaching and helpful on the subject involved that ever had been handed down by the Supreme Court. While the government desires to be accommodating to business, it was stated, it will not go to the point of defeating the purposes laid down by the decision. It was pointed out that there are a large number of civil cases pending in the courts and that any "concessions" the government made in attempting to interpret the decision, said to be so clear it cannot be misunderstood, might prejudice many of the cases now under judicial review.

When asked if the plans of Secretary Hoover to cooperate with trade associations will be modified, the attorney general said that if he discussed this matter it would be with Hoover only. He said he was sure, however, that Secretary Hoover would pursue nothing but a legitimate policy.

Referring to what he termed the clearness of the Supreme Court decision in the Hardwood case, Daugherty said: "We are compelled to maintain a position which is so fully justified by the decision of the Supreme Court."

The attorney general said that the Department of Justice would not ordinarily interfere with the proposal of Hoover regarding the announcement of a policy, but that he would not state such a policy as coming from the Department of Justice, and it was suggested that any statement coming from any other department might weaken the position of the government.

The READERS' CLEARING HOUSE

Questions & Answers on Dealers' Problems

Ten Mechanics Want to Go in Business—How Shall They Organize?

Q—We are a group of 10 mechanics who have pooled a little money and are renting a garage to do business.

1—How can we organize so as to be protected from excessive liabilities? All 10 are working in other garages and making a fairly good rate, eight hours a day. None of us care to go to work in our new garage.

2—Would it be best to hire others for the work, or should some of the 10 quit their jobs to do it?—Rubber City Garage, Akron, O.

1—The two important forms of organization are partnerships and corporations. In a partnership all partners are liable and responsible for the partnership debts and obligations, and a death of one partner ends the partnership. To escape the unlimited liability of each partner, as well as for other advantages, the corporation was devised by ingenious lawyers, and today this form of organization predominates in the business world.

Ten partners might find it difficult to harmonize their many viewpoints as partners, especially as difficulties were encountered in the conduct of the business; but they might combine into a corporation with one in control and proceed as a single individual. There are many liabilities like personal injury and employes' liability that can be shifted from each partner to the ocrporation.

Now, of course, the corporation form is more expensive in that there are various corporate taxes, to be paid for the privileges of functioning as a corporation. Then, in organizing, the state's blue sky laws must be complied with, and Ohio has some strict laws in that regard. But I take it you will not attempt to sell stock, and so you should have no difficulty here.

When you organize you will elect a president, a vice-president, a secretary, and a treasurer of the corporation, a board of directors, and you will have to have a manager who may or may not be a member of the corporation, unless the constitution or by-laws make specific provision therefor.

2—Your second inquiry is a practical business proposition, but closely connected with the first. There are two big elements of success which you must keep before you. First, you must get the business; then, having the business, you must render the required service. You must not only sell your customer, but you must satisfy him so tnat he will return to you and by his influence send others to you.

The Reader's Clearing House

THIS department is conducted to assist dealers and service station executives in the solution of their problems.

In addressing this department, readers are requested to give the firm name and address. Also state whether a permanent file of MOTOR AGE is kept, for many times inquiries of an identical nature have been made and these are answered by reference to previous issues.

Inquiries not of general interest will be answered by personal letter only. Emergency questions will be replied to by letter or telegram.

Addresses of business firms will not be published in this department but will be supplied by letter.

Technical questions answered by B. M. Ikert and P. L. Dumas; Legal, by Wellington Gustin; Paint, by G. King Franklin; Architectural, by Tom Wilder; General Business questions, by MOTOR AGE organization in conference.

Many are able to get the business, but the house is unable to satisfy and cannot hold the business gotten. Many a promising business has gone on the rocks because of this failure in the production department. So you will need a good general manager who can correlate all departments of your business.

On the face of things, it doesn't look promising where ten of you want to join, yet none want to give up their jobs to manage the business. As a rule, no one will be found who would have the same interest at heart as one of the owners, none can be depended on as an owner, none will work so hard for success as an owner.

So you start out handicapped if you have to get an outsider to manage your own business. However, this can be done in the corporate form, and it might be the wise thing to do if none of you have executive ability. For first of all in your new venture you need a manager with executive ability.

Of course, it would not be wise for all of you to give up lucrative positions unless you had work to do in the new business venture. But the more of your own men you have connected with it, the greater the certainty for success, because of the greater interest therein, and the greater unified effort that will bring forth.

WHO PAYS THE STORAGE?

Q—Please give me your opinion on the following:

A man brings his car in to be repaired. After the work is finished, but before he comes after the car, it is attached by a local corporation. About a month later the owner finds that the car cannot be held, as it is mortgaged property, and the justice of the peace orders it released. The owner and the corporation both refuse to pay the storage on the car and we still hold it. Which should pay the storage from the time it was attached?—Central Garage, White Lake, S. D.

The corporation which wrongfully attached the car should be required to pay for the storage accruing under the attachment. However, if the owner should pay, he could recover same on the attachment bond, and it seems this would be the proper procedure. Though you perhaps could not hold under your lien against the mortgagor, you could hold the car as against the others.

MUST FILE ILLINOIS LIEN WITHIN SIXTY DAYS

Q—Am writing to ask your advice concerning the lien law in Illinois, having a case regarding it which puzzles me. It is as follows:

In July, 1921, a car was brought in for repairs, which were completed the latter part of August, when the charges on it amounted to about $200. The owner paid $50 in cash at the time he took the car, and since then has not returned nor paid any more on account, nor answered the letters we wrote him regarding it, so please let us know the best way to go about getting this amount. Also, tell us what the lien law is in this state.—J. A. Franger, Fairbury, Ill.

Regret to say that your lien under the Illinois statute has been lost to you. This law requires that lien claimant must file his claim within 60 days after it arises, which is on completion of the work and repairs, with the county recorder. This you have failed to do within the required time.

You still have the right to sue for your claim and, once judgment is had, to exhaust your powers in collecting on such judgment.

ZENITH CARBURETER ON KISSEL MODELS

Q—We have a Kissel car in for repairs and for installation of a new Zenith carbureter. We will have another car for installation of a Zenith carbureter. The machines are four-speed four-cylinder cars built about 1912. Can you furnish data showing bore and stroke from 1911-1914 on four-cylinder models and standard setting for Zenith carbureter for these models?—George B. Dearborn, Greenport, N. Y.

The following is the data concerning the Kissels referred to:

Model H, four-cylinder Kissel, built in 1912, 4½ in. bore and 4¾ in. stroke. The Zenith model is L5, choke No. 21, main jet No. 100, compensator No. 110, idling jet No. 45, needle valve seat No. 31. The model 30, built in 1913, bore 4¼ in., stroke 4¼ in. Model L5 Zenith, choke No. 20, No. 95 main jet, No. 105 compensator, No. 45 idling jet, No. 31 needle valve seat. Model B13, four-cylinder, 4⅞ in. bore, 5 in. stroke. Model L6 Zenith carbureter, choke No. 23, main jet No. 115, compensator No. 125, idling jet No. 50, needle valve seat No. 31. Model H13, 40, built 1913 and 1914, 4½ in. bore, 5¼ in. stroke. Model L5 Zenith, choke No. 22, main jet No. 105, compensator No. 115, idling jet No. 45, needle valve seat No. 38.

EXTENSIVE DATA ON ESSEX CAR

Q—Do Kant Skore aluminum pistons work out entirely satisfactorily in the Essex car, and would you recommend their installation?

2—On Essex engines just above the valve plate and under the exhaust manifold are the cylinder bore numbers. I have noticed them varying all the way from 3.3655 to 3.375 in.—just what is supposed to be stock?

3—On a practically new engine would you recommend ordering Kant Skore pistons by these numbers, or would you just specify stock size?

4—I have noticed a number of these cars that would spit back through the carbureter on hard, slow pull when valve seating and adjustment was perfect. I have remedied it on a number almost instantly by cleaning the distributer. One persists in doing it just the same or will do it again after one or two hundred miles of driving. What I blame it to is this—that under the slow hard pull, instead of the spark jumping the gap in the plug under high compression, it will follow along the metallic track left by the distributer brush and jump the gap in the plug next to fire, and consequently spit back through the carbureter.

Don't you think the distributor is traveling a little too far ahead so that it is perhaps nearly off the contact segment in the distributer cap before the points open, and in that way leaves it quite near the next one? Would you advise taking the spring out from under the distributer brush so the spark would have to jump across to the segment. I have seen mechanics tear down the entire distributer and bend and weaken the spring in the governor to overcome this. I think that when they reassembled and cleaned everything that is where they cured the trouble, instead of doing it by lessening the spring tension. What do you think?

This car that I have that persists in doing it is in perfect condition as far as I can see. It has wonderful speed, will do well past 70 m.p.h., and hits with the exception of on a slow hard pull, absolutely perfectly. I do not want to change the tension of the governor spring, because I think it bad practice, as I know of several that have never had their original power and speed since. What do you think?

5—I have another car that shows a pronounced detonation or carbon knock after the slightest carbon accumulation has formed in the cylinders, and, to get away from this, the head has to be taken off frequently and what little carbon there is, is scraped out. It now has two head gaskets; would you advise three or more to lower the compression?—W. M. Hicks,

1—This piston is factory equipment on the Essex.

2—3.375 in. is supposed to be the stock size which is 3⅜ bore. We would recommend that you micrometer the cylinders before ordering pistons, as this gives the most accurate measurement possible and eliminates all dependency on marks.

3—Refer to Answer 2.

4—This trouble may be due to the cause you mentioned, but we are inclined to think that it is due to faulty spark plugs. We would suggest that you try to secure a test set of high grade plugs, set at the proper plug clearance, which is about .020, and with the distributor cleaned, put the car in a hard slow pull and note whether the back firing takes place. The old-style Essex cylinder head has been improved.

We would recommend that if you have any Essex cars models previous to 1922 you secure the new style cylinder head and new style pistons, which entirely eliminate this popping back and also eliminate the detonation. We would not recommend changing the distributor from a contact distributor to an air-gap distributor. Neither would we recommend lessening the spring tension on the governor.

5—Practically the only change that has been made in the 1922 model Essex car has been made in the cylinder head and pistons by a different arrangement of the inlet passages; a better hot-spotting effect has been secured, and better vaporization has resulted. Also it has eliminated the frequent knock often heard in these cars when a slight amount of carbon was present in the cylinders. Instead of adding a third gasket, we would recommend that you put in the new style pistons and the new cylinder head and you probably will secure satisfactory results.

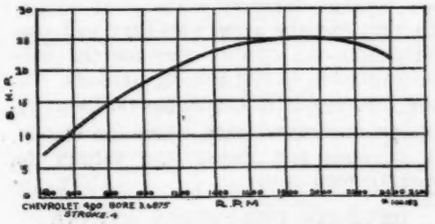


Fig. 1—Power curve of the Falls engine used in the 1920 Elgin

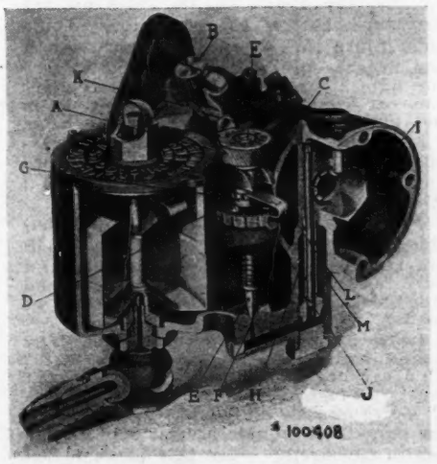


Fig. 2—Cutaway view of the Stromberg LB carbureter

ADJUSTMENTS ON ELGIN CAR

Q—Publish power curve of the Falls engine in the 1920 Elgin.

2—Give instructions for the adjustment of the Stromberg LB carbureter used on this car.—Walter F. Shank, Springfield, O.

1—The power curve of the Elgin Falls engine is shown in Fig. 1.

2—The adjustment at "A" is the main adjustment, controls the gasoline supply from the float chamber, regulates the mixture through the whole driving range and should be set so that the engine shows its best speed and power. Turning nut "A" clockwise, or to the right, raises the needle and gives more gas; anti-clockwise, less gas. The gasoline for "Idle" is taken in above the throttle and controlled by dilution with air from the inside of the carbureter, as regulated by screw "B," which should be between one-half and one and one-half turns to the left, or anti-clockwise, from the seating position.

After the engine is warm, this may be regulated as necessary, turning to the right for more gas, to the left when less gas is required. This adjustment is effective only when the throttle is nearly closed. As the throttle is opened, it will be noticed that at closed and wide open positions, the nut "A" and needle "E" are stationary, but at positions corresponding to speeds from 10 to 35 m.p.h., the needle drops so that "C" rests on "D." This function is based on the fact that a richer mixture is required for full power and wide open throttle than for closed throttle driving.

The amount of this action depends upon the clearance shown at "X" and is controlled by the position of the pointer "L," the extent of the action and consequent leanness of the mixture increasing with the number of notches. To make this adjustment, retard the spark, open the throttle to about a 20 m.p.h. position and set the pointer one notch less than the thinnest mixture on which the engine will run steadily when warm. This will usually be the third or fourth notch.

GEAR RATIO ON DODGE CAR

Q—What is the gear ratio of a 1920 Dodge, and what speed can be obtained?

2—The condensor of a 1919 Olds eight is in the coil. We want to change the present distributer to the new type Delco, which has the condensor within it. Can we use the old coil with success?

3—What is the meaning of the term "gear set?"—Roscoe Auto & Supply Co., C. J. Gealy, Roscoe, Pa.

1—The gear ratio of the 1920 Dodge is 4.16 to 1. This is used on all models. The approximate speed is 55 m.p.h.

2—The old coil can be used.

3—The term "gear set," as applied to specifications of an automobile, means the transmission or gear changing mechanism.

WIRING Z R MAGNETO

Q—We have been unable to secure information up to the present time on the magneto type Z. R. 6 and the coil No. 2540-E. If this is not correct, just give me a diagram of any one model that I might get something to work from. J. E. Wise, Washington, D. C.

The wiring of the Z R Six Dual is shown in Fig. 3.

CHARGING FORD MAGNETO

Q—Give instructions for charging a Ford magneto.—Theo. Rubenaker, manager, Ransom Battery Co., Ransom, Ill.

To recharge a Ford magneto, it is first necessary to ascertain whether the magneto is in a proper position for remagnetizing. There are two ways of doing this: first get a small compass and hold it on a level with the insulated terminals on top of the transmission case. Hold the compass about one inch to the left of the imaginary line running through this binding post, parallel to the frame of the car, also holding it about five or six inches back from this binding post. The engine then is turned over very slowly until the compass held in this position registers at a point about one inch to the left of this post. This means that the north seeking pole of the compass should point directly toward the front of the car; it is then ready to apply the current.

Just the minimum current necessary is not known, but very fine results have been obtained with 24 volts in the storage battery or from a generator up to 50 volts. Connect one end of this battery to the frame of the car and the other to the binding post of the magneto. Take care to break the contact formed on opening the circuit slowly and also make sure to disconnect the lights from the coil magneto terminal as they may be burned out from the high voltage used. Three to four seconds are enough to complete the operation.

TIMING A MAGNETO

Q—How is the spark timed on a Paige six, 1916 model?

2—How is it that a 1917 Overland four keeps getting out of time?

3—What is the trouble with a number of Dort cars, the battery posts of which have to be put on oppositely, the positive on the negative and the negative on the positive? If the positive is connected to the starter, it will register on the ammeter discharge, and if connected on the negative to the starting switch it will show charge,—George Stancombe, Oakland Avenue Garage, Pontiac, Mich.

1—To set the spark on a 1916 Paige proceed as follows: turn the engine over with the starting crank until the pointer or indicator on the crankcase arm comes directly in line with figures No. 1 and 6 dead center on the flywheel rim. This indicates that pistons No. 1 and 6 are at the extreme top of the stroke. By watching the opening and closing of the valves it will be found that as No. 6 exhaust valve is just closing No. 1 cylinder will be firing. Be sure that No. 1 cylinder is on the firing stroke.

Next remove the distributor cover from the magneto and turn the magneto armature until the carbon brush is in line with No. 1 terminal on the distributor cover. With No. 1 piston at top dead center or with the marks on the flywheel about an inch past the upper dead center mark, retard the breaker housing of the magneto to the full retard position. With the points just about to break on the magneto, connect the couplings and the engine is timed. It is only necessary to connect the wires in their proper order of firing, which can be determined by looking at the valve cover plates.

2—We presume that you mean that this engine goes out of time on the ignition. The distributor can go out of time—if the small screw which retains the distributor housing has been lost. This screw fits into a slot milled on the lower part of the distributor housing, and prevents it from working up out of the groove. This screw is directly opposite the grease cup.

3—This would indicate either a reverse generator or a reverse battery. As there are several different systems of wiring on this car the only way that you can determine the correct way for the battery to go in is to try both methods. Or the best way is to determine the polarity of the generator leads when the engine is running and install the battery to comply with this.

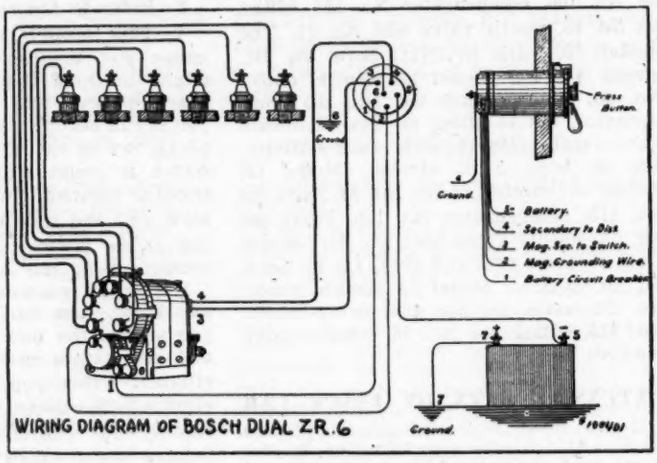


Fig. 3 — Wiring diagram of the Bosch dual magneto, model ZR 6

REVISING CHEVROLET ENGINE

Q—I intend to install a magneto on a Chevrolet 490, 1917 model, and would like to run the gears on the back of the armature shaft of the generator. Would this injure the generator in any way if the brushes are lifted when the battery for lighting is fully charged, as it gives the car considerable more power when not pulling the generator?

2—Would it be better to install a pressure gage, or can the sight feed be used successfully with a gear oil pump, as I wish to change pumps also?

3—Would like to know why it is that this car is supposed to have a weak differential when this one has been run over 70,000 miles and only has its second ring gear and has been over all kinds of roads?

4—How much more power has the Baby Grand engine than the 490 and the F. B.? This car does not idle as it should, but must run fast all the time. It will throttle down as slow as 5 m.p.h. when pulling the car. This trouble seems to be in the Zenith carbureter. Can this be remedied or is it advisable, as this car is very saving on gas and averages around 35 miles on a gallon of gas? Would a new carbureter be as saving on gas and make the engine run slower?—Willard Ward, Round Valley, Neb.

1—Lifting the brushes would not injure the generator in any way.

2—The sight feed gage will work all right with a gear pump, but to secure accurate reading the pressure gage is better because it permits observing the pressure in pounds.

3—Usually cars that really are good have more or less deprecatory rumors directed against them; we believe this to be the case with the Chevrolet.

4—The Baby Grand and the F. B. models are practically identical. The horsepower of the F. B. model is 34 and the 490 develops 26 h.p. on the brake. This denotes either an air leak in the gas distributing system or the wrong size idling well. We would suggest that you have the Zenith Carbureter Service Station adjust this carbureter, and no doubt they will be able to correct this trouble. We would not recommend the installation of a new carbureter.

INSTALLING AMMETER ON OAKLAND

Q—Advise where to cut in on Delco generator motor No. 49-195821, Oakland model 37, for ammeter connections.—Geo. A. Cook, Langsdale, Miss.

The wiring diagram of the 1915 model Oakland 37 is shown in Fig. 4 with ammeter connected.

DISTRIBUTOR OUT OF TIME CAUSES ENGINE TO MISS

Q—We have somewhat of a Mystery Tale for your magazine which has puzzled me and also some experts. Have an early 1919 Peerless eight which started bucking early last spring. I was planning to take a long tour and had this car overhauled. During the 2800 miles that I traveled, I never heard a whimper out of it. A short time ago it acted first like a gas stoppage, I took down the gas line, cleaned out the carbureter and vacuum system, but it did not do any good. The only way that it will pull is in low, or at a very fast second gear, but in high gear there is absolutely nothing doing. Then I thought maybe it was in the electric system, so I had new brushes put in, but to no avail. I would like you to advise me what is wrong.—Myron Stanley, Fairmont, W. Va.

Although you do not state whether the engine hits on eight cylinders or not, we presume that this is the case. There are two major causes for this sort of performance. First, determine the quality

of spark by removing one or two of the spark plugs and holding them ¼ in. away from a ground when the engine is running. This should show a hot spark jumping a gap of ¼ in. If the spark will not jump this gap, it is an indication of either a broken down coil or condensor providing the points are clean. Also make sure that both banks are hitting, as many times operators of Peerless cars complain of this same trouble when only one bank of cylinders is hitting. If the spark is adequate, then check up the spark timing with the circuit breaker or distributor in fully retarded position. The spark should occur just as the piston has started downward on the explosion stroke. Measured on the flywheel, the points should just start to break when a mark approximately 1½ in. past the upper dead center mark is in line with the pointer. To determine whether both banks are hitting, have a second person sit on the running-board and observe by opening the pet cocks whether all cylinders are firing when the engine is in high.

Testing an Ignition Coil

Q—Advise me how to test a six-volt coil to accuracy to show its defects for not working perfectly.

2—Advise how to shunt Delco generator used on K-45 Buick when running with battery removed.

3—How is generator output controlled?

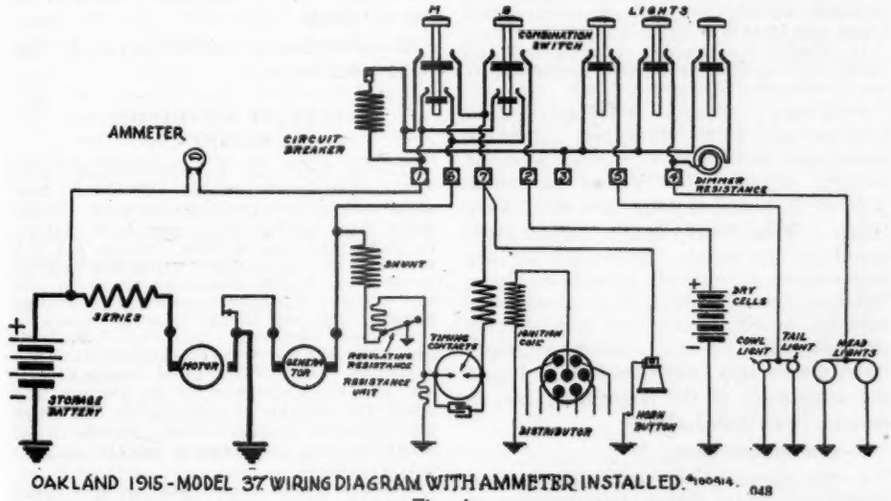
4—Advise whether the Buick factory burns in bearings or scrapes them? What would you advise?—A Subscriber.

1—The troubles most frequently encountered in ignition coils are condenser troubles or open or shorted primaries. A shorted primary is very rare, but an open primary frequently occurs. To test for shorted condenser, disconnect the condenser, if the condenser is not inside of the coil. Connect the terminals leading to the condenser across 110 volt A.C. or D.C., with a lamp in series. If the lamp lights, the condenser is short-circuited or broken down between layers. On systems using grounded ignition—that is, grounded primary windings and ignition coils, such as the Studebaker, Remy coil model 171-A—connect the post to which lead from the breaker is attached, marked "timer," and to base of coil for this test. If the primary winding has become grounded in the above type of coil, the lamps in this test will be lighted just as if the condenser were shorted.

However, if the breaker points are badly pitted and burned, this can be assumed as condenser trouble. On coils using insulated ignition, the primary wire not grounded, such as the Velie-Remy coil model 172-A, connect the center post marked timer switch to the outside post which has not the resistance unit connected to it. An open condenser shows itself by very severe arcing at the contact points.

In case a 110-volt D.C. is available, a capacity test can be made by connecting across condenser with the lamp in series, then disconnecting and bringing the condenser terminals together. If a good spark is obtained, the condenser is alright. A good ignition coil should produce a spark that would jump at least a ¼-in. gap. Put the coil on test and see what it will do. If it produces a good spark and does not miss at all after a three or four-hour run—that is, after it is well heated, it may be considered a good coil and fit for service.

2—There is no recommended way to shunt the Delco generator on the Buick. The practice generally followed is to ground the battery terminals where the battery was disconnected. A better method is to hook a resistance of some sort in between these two points, which will take some of the load off the generator armature. The generator cannot be shunted at the generator, because it will rob the current from the ignition coil which is necessary for the car's operation. The Buick Co. in this city states that as an emergency measure, you may run with the battery disconnected by grounding both terminals directly to the car frame.



OAKLAND 1915-MODEL 37 WIRING DIAGRAM WITH AMMETER INSTALLED. 100414. 048

Fig. 4

3—The generator output is controlled by regulation of the third brush.

4—From the latest information from the Buick factory it is known that they do not burn in bearings but scrape them by hand and put them through a limbering-up process. This limbering-up process consists of running the engine under belt power for several hours until all bearings have a good surface and are sufficiently free to do no damage when placed in the hands of the owner.

ALTERED TIMING SUCCESSFUL FOR SPEED WORK

Q—We are rebuilding a 1916 Dodge roadster for more speed. What timing of the valves would you suggest and what make of pistons and rings? Would counterbalances on the crankshaft help the engine any?

2—Is there a speed body built for Dodge cars, and by whom?—Charles P. Geifen, care of C. W. Mann Motor Co., Norristown, Pa.

1—Unless you wish to grind off the heel of the cams to give greater lift to the valves or purchase a new camshaft, we would recommend setting the camshaft one tooth ahead. Lightweight pistons of the constant clearance type for aluminum or lightweight cast iron pistons should be fitted. We know of no successful counterbalances for the Dodge crankshaft.

2—We have no records of firms manufacturing speed bodies for the Dodge. The firms that build special bodies for Ford speedsters no doubt would modify one of their bodies to fit the Dodge chassis.

VALIDITY OF BILL OF SALE WHEN NOT RECORDED

Q—We would be pleased to have you answer the following:

1—Do the laws of Wisconsin demand that a bill of sale be recorded, in order to be legal?

2—Providing a party has a bill of sale of a car and another garage, knowing he has this, does not record it. He then goes and gets a bill of sale and records same. First party has possession of the car; is the second bill of sale good, and can he take the car? He knew that the car was sold before he got his bill of sale.

3—A party had his car repaired and agreed to pay in a week, but failed to do so. He then had more work done later. Can we hold the car for the full amount, first labor and second included according to Wisconsin laws?—E. C. Cullman, West Salem, Wis.

1—I find no requirement in the Wisconsin statutes that a bill of sale must be recorded.

2—Where the second purchaser has actual knowledge of a bill of sale of a car and the first party also has possession of the car, the second, or subsequent purchaser, would have no title or rights in the car.

3—The Wisconsin statute gives a lien to the garagekeeper for labor and repairs on cars and other personal property, but it requires him to retain possession as at common law. Therefore, you could retain possession for only the last work done; for where you permitted the car to go out, you, by that act, released your claim for a lien. However, having possession, you might secure a settlement of both claims before giving up the car.

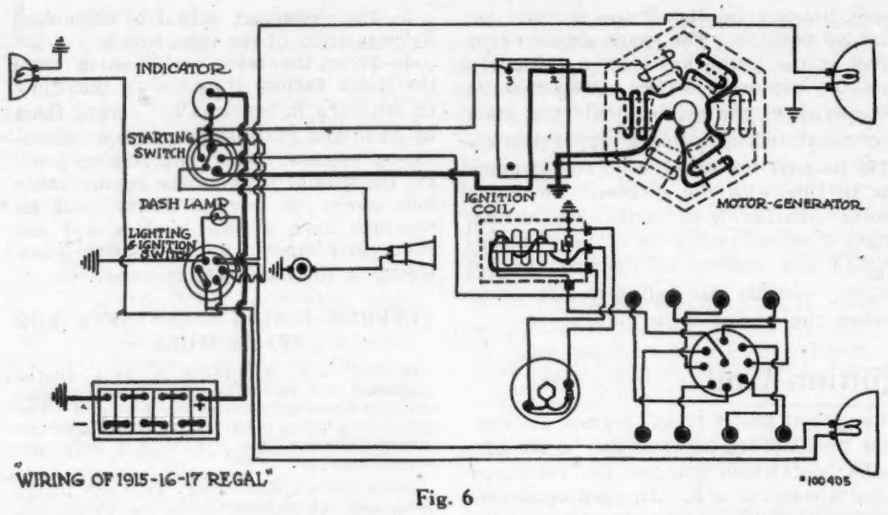


Fig. 6

DATA ON FORD ELECTRICAL SYSTEM

Q—Where is the proper place for the dash light wire to be connected? Should it be connected to the battery post on the switch or the ammeter post?

2—Publish the wiring diagram for converting the Ford Tu-Lite system into a single filament bulb lighting system, or for using a common six to eight-volt bulb and still be able to dim them.

3—Is a 13-plate six to eight-volt battery harder to charge than an 11-plate six to eight-volt battery, or is it an overload for the Ford generator?—Arwin C. Feld, Cleveland, Wis.

1—On a Ford probably the best place to install the lights would be on the tail light post, marked "tail" on the switch.

2—The diagram for the Ford using single bulb lights was published in the Nov. 10 issue of MOTOR AGE, in a special article on the Ford electrical system. It is necessary to secure a switch with a dimmer resistance before this change can be made. Reference to the article mentioned will show the necessary connections for this change.

3—This will not place any overload on the Ford generator.

WIRING DIAGRAM OF 1915 REGAL

Q—Publish wiring diagram of the 1915 eight-cylinder Regal car.—F. F. Swinson, Swinson Buick Co., Pratt, Kan.

The diagram is shown in Fig. 6.

VARIETY OF QUESTIONS REGARDING MAXWELL

Q—How much is it advisable to rebore the cylinders on a 1916 Maxwell, model 25, to make this engine turn over faster? Also, is it possible to enlarge the valves and valve ports, and what is the maximum size that may be reached without undue weakening of the engine?

2—Would aluminum pistons of the Kant Skore type stand up if used with aluminum rods, or would pistons of the DeLuxe type be any better? I have an idea that the heavy rods that are generally used in conjunction with aluminum pistons have a detrimental effect, as I believe the heavy rod drives the piston to the cylinder wall with every stroke.

3—What is the most that could be planed off of the cylinder head with safety?

3—Explain the method of balancing a crankshaft with Dunn counterbalances.

5—Could copper tubing be used successfully in making an intake manifold?

6—As I understand it, the size of the carbureter is regulated by the size of the valves. Is there any advantage or disadvantage in having a carbureter larger than is necessary?

7—To what size do you recommend enlarging the valves and what size carbureter should be used?

8—What is the maximum speed of this engine when it is standard and when it is 'souped up'?

9—Furnish the address of the manufacturer of Pasco wire wheels.

10—Furnish the names of firms who build special bodies for light cars of this type?

11—Where can I secure a nickel-plated radiator shell? I want to get a body similar to the type used on DePalma's special Packard.

12—Could any other cutout be used in the Simms-Huff system on this car, and, if so, please give diagram?

13—Where can I secure a spiral bevel ring gear and pinion to replace the old beveled gears? The gears in the new Maxwell will not fit.

14—Would it be advisable to use the regular camshaft, and, if not, where could I get one that is a little faster?

15—Could the timing be advanced one tooth, or would that be too much?—Morton Gottschalk, Cheyenne, Wyo.

1—A maximum total of 1/8 in., that is, 1/16 on each wall. The valves and valve ports can be enlarged a maximum of 5/32 in., which means 5/64 on each side.

2—Both these pistons are used very much. The Kant Skore piston will stand up. In neither case would we recommend the use of aluminum rods. There is some logic in your query concerning heavy connecting rods, but in the new type constant clearance aluminum piston this consequent slap, due to the angularity of the connecting rod, is entirely eliminated.

3—One-eighth inch.

4—To thoroughly counterbalance a crankshaft with Dunn counterbalances the crankshaft should be removed from the engine. When the crankshaft is removed it should be mounted on knife edges which are both at the same relative level. The counterbalances should be installed one set at a time; that is, the two halves which constitute one set should be installed and the shafts balanced by taking off weight in certain spots until the shaft will remain in any position in which it is placed. This set of balances can be considered as finished. The next set is then installed and the same operation is followed. In balancing with these counterbalances, one must be careful not to remove too much material from the counterbalances and should proceed with the utmost care and caution. When both sets of balances are on the shaft it should remain in any spot that it is placed on the knife edges without moving either to right or left.

5—It is possible to use copper tubing, but brass tubing is preferred because of its hardness and its ability to stand brazing better than the copper tubing.

6—There is no advantage in having the carbureter larger than is necessary, but for speed work where the utmost volumetric efficiency is desired, a larger carbureter than is usually used is installed to give the excess amount of fuel that will be needed to secure the highest horsepower.

7—To 5/32 larger than their present size. Use an 1 1/4 carbureter.

8—Approximately 2200; when it is tuned up it is possible to secure a speed as high as 3000.

9—Maryland Metal Products Co., Hagerstown, Md.

10 and 11—These will be answered by special letter.

12—The Ward-Leonard Electric Co. manufactures a regulator which can be used on this system. They will furnish drawings for its installation upon purchase.

13—This information will be supplied by letter.

14—This would necessitate having a camshaft manufacturer supply you with one. This would have to be made to special order and would be quite expensive. We would recommend that you use the old shaft.

15—The timing can be advanced one tooth with safety.

DETERMINE CONDITION OF CYLINDERS

Q—We have an Overland four, with 8000 miles to its credit. This car first came out with aluminum pistons. These were later replaced by cast iron pistons furnished by the factory. These did not stop the oil pumping. Then we put on McQuay & Norris Superoyl rings in the top groove, step cut concentric in second groove and one of the original rings in the lower groove. Although the oil pumping has stopped, the engine does not seem to have very good compression. The air fairly whistles by the pistons, and when the engine is running the oil filler pipe acts as a smoke flue. Advise what make of ring you would install to give compression.

2—Do you think new pistons and rings should be installed? Engine runs and pulls well.—R. J. Camp, Shambaugh, Ia.

1—You state that the engine runs and pulls well. If the oil consumption is not excessively high, there should be no cause for worry. If you wish to put the engine in perfect shape, we would advise that you determine whether the cylinders are perfectly round. Any of the leading standard makes of rings should hold the compression if the cylinders are round. If measurement with the micrometer shows that the cylinders are more than three-thousandths out of round, they should be reground and new pistons and rings fitted.

2—Refer to answer 1.

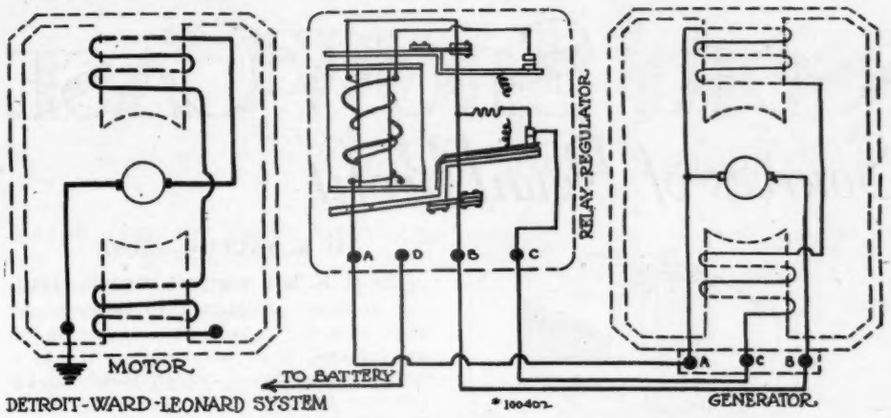


Fig 7—Internal circuits of Detroit Ward-Leonard system on Saxon

WARD-LEONARD DIAGRAM

Q—Publish the internal diagram of the Ward-Leonard Detroit system on the Saxon.—W. M. Beaver, Charleston, W. Va.

A—The internal diagram of this system is shown in Fig. 7.

EXPLANATION OF THIRD BRUSH THEORY

Q—Explain the third brush series.—L. G. Baldwin, Huntington Beach, Cal.

Since the voltage rate generated in the armature of the generator is proportional to the number of magnetic lines cut per second, it is evident that by regulating the speed at which the armature travels we can regulate the voltage generated. It is also evident that by regulating the field strength and just changing the number of magnetic lines flowing through the armature, we can regulate the generator voltage. The latter is the usual method. A rheostat or adjustable resistance is placed in series with the field and the field strength regulated by cutting in or out resistance.

The current flowing through the armature of a dynamo will set up a magnetic field in the armature core, which is independent of the field set up by the field magnets. There are, then, two magnetic fields through the armature with directions at angles to each other. In a two-pole machine the magnetic lines of force of the field windings flow directly across the armature, providing there is no armature reaction. Due to the reaction set up in the armature, the magnetic field set up in the armature by the current in the windings is in an opposite direction, one side of the armature to that of the other side. The magnetic flux will flow around the two halves of the windings in different directions, but will be in the same direction through the armature core.

These two fields are at right angles to one another and, acting together, will produce field shown in Fig. 8. It will be seen that this distortion of the field causes a crowding of the lines of force in the trailing pole tips, so that the magnetic density will be greater in the trailing pole tips and less in the leading pole tips. This action will be greater as the load increases, since the field due to armature reaction is proportional to current flowing in the armature coils. In order to secure good commutation it is necessary to move the brushes ahead in the case of a generator and back in the case of a motor on account of armature reaction. The action of the third brush system of regulation is as follows: Refer to Fig. 8. We have seen that this distortion causes the magnetic lines of force to become more dense in the trailing pole tips and less dense in the leading pole tips.

Since the magnetic density in the pole tips and also in the part of the armature opposite them varies as the current in the armature varies,if we place a third brush upon the commutator, as indicated in Fig. 8, so that it connects with the armature coils as they pass the trailing pole tips where the flux density becomes greater as the current increases due to increased speed and the field being connected between this third brush and opposite line brush or the first main brush, we will have a voltage impressed upon the field which will begin to decrease when the armature reaches about three-fourths of the maximum output.

When the maximum output is reached the field voltage will decrease rapidly as the speed increases. This will weaken the field voltage, and consequently lower the voltage of the generator; thus we will have an inherent regulation. We have seen that the movement of the third brush either to or away from the first main brush causes a variation in the voltage impressed in the field by cutting out or adding additional commutator coils. It will be plain that to increase the output of this type of generator the third brush should be shifted to a point nearer the second main brush, which will increase the field voltage between the first main brush and the third main brush, all through the addition of more armature coils. Moving the third brush away from the second main brush will decrease the maximum field voltage as the armature coils are eliminated.

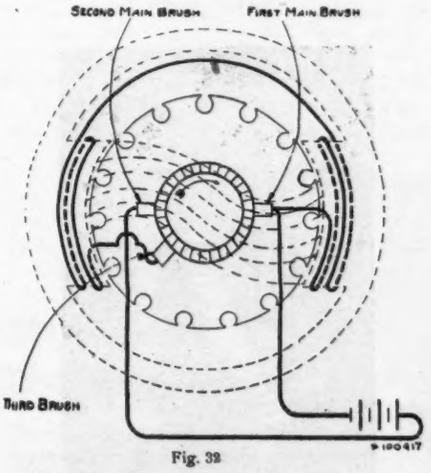


Fig. 32

Fig. 8—Flux distortion in D.C. generator

CHARLES LAW OF GASES

Q—What is the temperature of the mixture under compression in the automobile internal combustion engine at 60 and at 70 lbs. gauge pressure?—L. G. Moyer, Seattle, Wash.

This cannot be stated accurately, because it varies with the various designs. The average is from 700 to 1150 deg. absolute.

The ordinary thermometric scale is entirely arbitrary. The scale is graduated into equal parts of 1/180 of the distance between the freezing and boiling points. The Fahr. freezing point is 32 deg. and the boiling point is 212 deg. In absolute temperature ratings, the zero is what would correspond to minus 461 deg. Fahr. If the absolute zero is fixed as minus 461 deg. and temperatures measured from this point, then the increase in volume of a perfect gas (the pressure remaining constant) will be directly proportional to the increase in the temperature of the gas, or if the volume remains constant, the increase in pressure will be directly proportional to the increase in temperature. This relationship is known as Charles' law.

COST OF AXLE IMPROVEMENTS

Q—Supply the following information regarding the differential on the Chalmers 35 A, 1917. Does this model have the reputation of breaking differential parts and showing a weak differential or weak differential parts?—Claud V. Heaberlin, Heaberlin Brothers Garage, Kirksville, Mo.

The model 35-A Chalmers, 1917, gave no more trouble than many other cars of the same make. However, oversize parts the same as used in the present Chalmers can be secured; this includes new and larger differential housing casing and larger axle shafts. The cost of the entire new equipment is $57.50, and can be purchased from any authorized Chalmers service station.

GENERATOR TROUBLE ON NASH

Q—What is the trouble with the generator on a Nash car when the ammeter does not show charge? When the engine is running and the cutout points are closed by hand, sending the battery current through the generator, it will generate for a while. The cutout and wiring are in good condition. We cannot get a spark at the generator terminal when the car is running. The fan belt is tight enough.—Claude Press, Blue Ridge, Tex.

The indiactions of this generator point to a defective armature. Would suggest that you remove the generator and test the armature and fields and examine carefully all brushes and brush holders and internal connections in the generator. If a growler is available, the generator can be tested on the growler.

The ACCESSORY SHOW CASE

New Sources of Retail Profit

NIAGARA AUTOMOBILE HEATER

In this heater, the warm air is transmitted from the muffler through a flexible metal tubing and is taken into the intake chamber, circulating through the exhaust chamber and out under the car through another length of flexible tubing.

The two heating chambers in turn transmit the heat to the top or radiating cover of the heater so that nothing but heat reaches the interior of the car. The heat is regulated by a lever device which opens and closes a ground-to-a-fit valve. When heat is wanted, the valve is opened; when it is not, the valve remains closed and the heater remains absolutely cool. Castor Distributing Corp., Niagara Falls, N. Y.

OIL REGULATING AND COMPRESSION TYPE PISTON RINGS

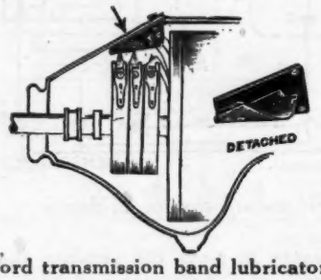
Two types of rings known as the oil regulating type and the compression type are now being put out by the Indiana Piston Ring Co., Hagerstown, Ind.

The compression type is a plain, diagonally split ring which is the same type as the ordinary piston ring except that stress is laid upon the roundness of the ring, thereby materially assisting in establishing a seal to more perfect contact with the cylinder bore. The oil regulating type has a groove cut circumferentially around the center of the ring and is then clotted at the base of this groove. There are five of these slots. The circumferential groove picks up the oil from the wall and allows the excess to drain back to the center.

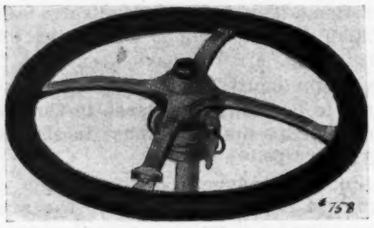
FORD TRANSMISSION BAND LUBRICATOR

The J. S. R. lubricator is designed to catch the oil from the side of the flywheel and distribute it over the transmission bands. To install, remove the six screws in the transmission cover plate over the transmission bands. Place the lubricator is place by having the larger end of the funnel pointing directly at the flywheel and replace cover plate. A. L. Just Mfg. Co., 107 North Franklin street, Syracuse, N. Y.

O. K. vacuum brush

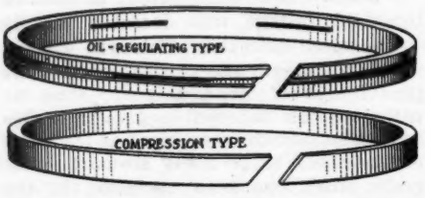


Ford transmission band lubricator

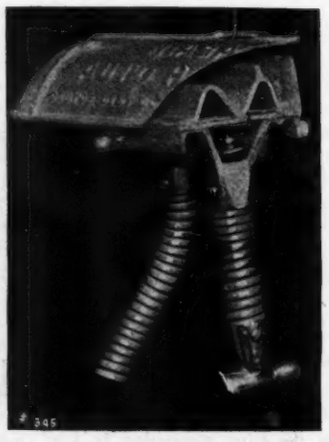


Protector lock wheel for Fords

Aurora luggage carrier



Oil regulating and compression type piston rings



Niagara automobile heater

O. K. VACUUM BRUSH

The O. K. is a compact vacuum cleaning apparatus designed to be used by hand over the upholstery and out of the way places in an automobile. It has a motor driven brush which picks up all lint and has ample air suction to draw up dirt and grit embedded in the surface. In one model the dust is gathered into the hollow handle, but for cleaning, where there is likely to be an excessive amount of dirt, an auxiliary dust bag is supplied. A strap attached to the bag and looped over the arm facilitates handling. O. K. Machine Co., Ft. Wayne, Ind.

AURORA LUGGAGE CARRIER

This all-steel collapsible luggage carrier provides a compartment for suitcases and bundles on the runningboard. It extends the full length of the runningboard or the length of any piece of baggage. This carrier is collapsible, and when not in use, can be folded to fit in the tool box. It is made of steel bars, one inch wide. Mor-Air Auto Pump Co., Aurora, Ill.

PROTECTOR LOCK WHEEL FOR FORDS

To lock this steering wheel, the trigger is pulled down as far as it will go over the safety catch pin. The safety catch pin prevents the accidental disengaging of the wheel while driving. The key is used only to disengage the lock. The gear cover is regular Ford equipment and no alteration in gears or cover is necessary for installation. Dill Mfg. Co., Cleveland.

BULL-DOG TIRE LOCK

This is a heavy steel cable, rubber covered, which, it is claimed, cannot be sawed in two or broken. A hardened steel lock is welded to the cable. It is claimed for this lock that it cannot be picked or drilled and that it is approved by the Insurance Underwriters. Price $5. Automotive Equipment Corp., 105 West Monroe St., Chicago.

Bull-dog tire lock

SERVICE EQUIPMENT

Aids for Time Saving & Accuracy

USACO LINE OF HEAVY DUTY AIR COMPRESSORS

They are suitable for large garages, machine shops, factories, etc., having many compressed air outlets for tire inflation, cleaning purposes, operating air tools, air hoists, or other pneumatic machinery.

The outstanding features are: overload relay, which provides absolute protection against overloads. The unit is amply cooled by means of a hopper of sufficient capacity to require refilling very infrequently. The cooling hopper is made a part of the compressor, which eliminates any tanks, hose, or dripping connections. In the event of heavier, continuous duty, requiring greater cooling, threaded holes are provided for circulating water pipe connections. In addition to water cooling, a fan flywheel of generous proportions bathes the compressor in circulated air.

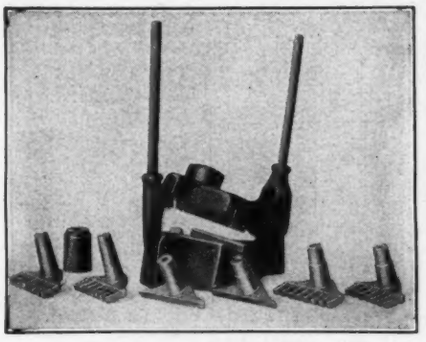
The automatic controller can be set to start and stop the compressor at any desired pressure. The air pressure release, working in conjunction with the automatic controller, permits the equipment to start against no pressure and to pick up its load gradually. This device also discharges any oil, dirt or moisture which may accumulate in oil trap, assuring that only pure, dry air enters tank.

The United States Air Compressor Co., 5304 Harvard ave., Cleveland, O.

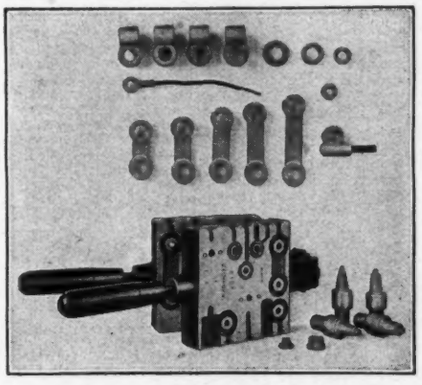
WATERPROOF SANDPAPER

A waterproof sandpaper, useful in the automobile painting trade in that it can be used with water at a saving in place of pumice stone in rubbing out color and varnish coats and also on first coats of rubber varnish, and which can be washed off with water after using so that no sand remains near the surface of the subject, is announced by the Minnesota Mining & Mfg. Co., St. Paul.

H-B shop aid



Washburn post strap mold



Washburn link combination mold

WASHBURN BATTERY MOLDS

Washburn molds will, it is claimed, cast 90 per cent of the lead parts. The post strap mold will cast three posts a minute. The removable tooth rack permits casting odd and even number teeth on the post strap to receive the plates. By reversing the ends, blanks can be cast when needed. Two bushings are furnished which are bored and reamed to standard post sizes, fitting the standard rubber covers commonly used.

The link combination mold, it is claimed, will not overheat where speed is required. It casts five of the most used connectors, using standard jars, 7, 9, 11, 13 and 15 plate, four end connectors (two Dodge tapers and two standard tapers, negative and positive), one end connector, ⅜-in. lead used on 12-volt Maxwell and all other cars having a wire lead. Two post support rings fit the two sizes of standard rubber covers and also fit all posts cast with the Washburn post mold. A mold which casts 4 end connectors, including the cable lead and two washers, is also made.—The Washburn Burner Corp., Kokomo, Ind.

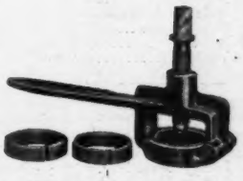
H-B SHOP AID

This device consists of a ball bearing H-B buffer and grinder, compactly mounted on heavyweight stand, with buffer or grinder stand on one side and pulley for operating air compressor or line-shaft drill-press on the other.

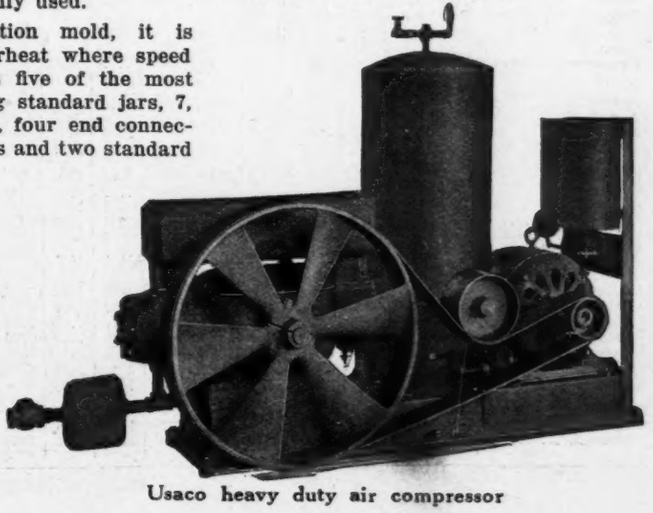
This outfit enables the garageman to furnish air service, quick tire buffing service and at the same time operate all of the machinery in the garage. Where desired, automatic switch is furnished, maintaining constant pressure on the air lines. Can be furnished with or without compressor outfit, as illustrated. Weight 430 lbs. Hobart Brothers Co., Troy, O.

THOMASON UNIVERSAL WHEEL PULLER

The following claims are made for the Thomason wheel puller: it removes wheels from practically all cars with semi or ¾ floating axles. This is accomplished by the use of hub "adapters." Tapered on their outer circumference to fit the receiving bore, they exert tremendous clamping power on the hub. This prevents stripping of threads. Taper also makes insertion and removal of adapters easy and quick. A steel ball imbedded on the point of the screw prevents the dragging up of metal on the axle when pressure is applied. Made in three sizes. C. N. & F. W. Jonas, 608 South Dearborn street, Chicago.



Thomason universal wheel puller



Usaco heavy duty air compressor

Specifications of Current Passenger Car Models

NAME AND MODEL	Engine Make	Cylinders, Bore and Stroke	WB	Tires	2-Pass.	5-Pass.	7-Pass.	Coupe	Sedan
Ambassador R	Cont.	6-3½x5¼	136	33x5	....	†4500	$4500	....	$6500
American C	H-S.	6-3¼x5	127	32x4	$2195	2195	†2250	3150	
Anderson Series 40	Cont.	6-3¼x4½	120	33x4	2195	1650	1795	$2450	2550
Apperson 8-21-S	Own.	8-3¼x5	130	34x4½	....	3000	3250	4500	4500
Auburn 6-51	Cont.	6-3¼x4½	121	32x4	1575	1575	1615	2275	2395
Auburn Beauty Six	Cont.	6-3¼x4½	121	32x4½	....	†2195	....	....	....
Beggs 20T	Cont.	6-3¼x4½	120	33x4	1775	1520	....	2320	2420
Bell 4-32	H-S.	4-3½x5	114	31x4	....	1495	....	....	....
Bell 6-50	H-S.	6-3¼x5	124	32x4	....	1695	....	....	....
Biddle B1 & B5	Budn.	4-3¾x5½	121	32x4	3475	†3475	....	4350	....
Brewster 91	Own.	4-4 x5½	125	32x4½	‡6000	6000	....	....	9200
Buick 1922-34-35-36-37	Own.	4-3⅜x4¾	109	31x4	895	935	....	1295	1395
Buick 1922-44-5-6-7	Own.	6-3⅜x4½	118	33x4§	1360	1395	....	1885	2065
Buick 1922-48-9-50	Own.	6-3⅜x4½	124	34x4½	....	....	1585	2075	2375
Cadillac 61	Own.	8-3½x5½	132	33x5	3100	3100	3150	3925	4100
Case X	Cont.	6-3¼x4½	122	32x4½	....	1890	....	....	2790
Chalmers 6-30	Own.	6-3¼x4½	117	32x4	1245	1295	....	1995	2295
Chalmers 6-30	Own.	6-3¼x4½	122	33x4½	....	....	1395	....	....
Champion Tourist	Lyc.	4-3½x5	113	32x3½	....	995	†995	....	....
Champion Special	H-S.	4-3½x5	118	32x4	†1095	1095	....	....	....
Chandler Six	Own.	6-3½x5	123	33x4	1595	....	1695	2295	2395
Chevrolet 490	Own.	4-3½x4	102	30x3½	525	525	....	875	875
Chevrolet FB	Own.	4-3½x5¼	110	32x4	975	975	....	1575	1575
Cleveland 40	Own.	6-3 x4½	112	32x4	1175	1195	....	1550	1595
Climber Four K	H-S.	4-3½x5	115	33x4	1385	1385	....	....	....
Climber Six S	H-S.	6-3¼x5	125½	32x4½	2250	2250	....	3000	3100
Cole 890	Nort.	8-3½x4½	127¾	33x5	2485	†2485	2485	3385	3685
Columbia Challenger	Rut.	6-3½x5	115	32x4	....	1195	....	†1995	1995
Columbia D-C&CS	Cont.	6-3¼x4½	115	32x4	1475	1475	†1475	‡2295	2350
Comet C-53	Cont.	6-3½x5¼	125	33x4½	....	2350	2450	....	3650
Commonwealth 44	H-S.	4-3½x5	117	32x4	....	1395	....	....	2465
Crawford 22-6-40	Cont.	6-3½x5¼	122½	32x4	2750	2750	2750	....	4500
Crow-Elkhart L63-65	Lyc.	4-3½x5	117	32x3½	†1095	1095	....	....	....
Crow-Elkhart S63-65	H-S.	6-3¼x5	117	33x4	1345	1345	....	....	2095
Daniels D-19	Own.	8-3½x5¼	132	34x4¼	‡5350	†5350	5350	6250	6950
Davis 61-67	Cont.	6-3¼x4½	120	33x4½	†1895	1795	†2050	2595	2595
Dixie Flyer H-S-70	H-S.	4-3½x5	112	32x4	1195	1195	†1395	1895	1895
Dodge Brothers	Own.	4-3⅞x4½	114	32x4	935	985	....	1585	1785
Dorris 6-80	Own.	6-4 x5	132	33x5	....	†4785	4785	5800	7190
Dort 19-14	D-Ly.	4-3½x5	108	31x4	985	985	....	1535	1695
Driggs	Own.	4-2⅝x4½	104	30x3½	1275	1275	....	....	1975
Duesenberg Straight 8	Own.	8-2⅞x5	134	33x5	6500	6500	6750	7800	7800
Du Pont A	Own.	4-3½x5½	124	32x4½	3000	3200	....	3800	4000
Durant A-22	Own.	4-3⅜x4¼	109	31x4	....	890	....	1365	1365
Durant B-22	Anst.	6-3¼x4½	123	32x4½	1600	1650	....	2250	2400
Earl 40	Own.	4-3⅞x5¼	112	32x4	1485	1185	....	....	1895
Elcar K-4	Lyc.	4-3½x5	117	33x4	†1095	1095	‡1095	1345	1345
Elcar 7-R	Cont.	6-3¼x4½	117	33x4	1395	1595	‡1595	2165	2065
Elgin K-1	Falls.	6-3⅛x4¼	118	33x4	1345	1295	†1345	2195	2195
Essex	Own.	4-3½x5	108½	32x4	1095	1095	....	1345	1895
Falcon 4	Own.	4-3½x5	115	32x4	1295	1295	....	1990	2085
Falcon 6	Own.	6-3½x5	115	32x4	1595	1595	....	2295	2395
Falcon, H.P.M. 12-D22	Own.	4-2¾x4	100	27x3½	2800	†3000	....	....	4009
Ferris Series 60	Cont.	6-3½x5¼	130	32x4½	2575	....	2475	....	3475
Ferris Series 70	Cont.	6-3⅝x5¼	130	32x4½	2895	....	2795	....	3895
Ford T	Own.	4-3⅜x4	100	30x3½	**325	††355	....	595	660
Franklin 9-B	Own	6-3⅛x4	115	32x4	2300	2350	....	2650	3350
Gardner T-R & G	Lyc.	4-3½x5	112	32x3½	1095	1095	....	....	1695
Grant	Own.	6-3½x4½	116	32x4	1385	1385	....	1895	1945
H.C.S.	Weid.	4-3⅝x5½	120	32x4½	2725	†2775	....	3450	3650
Handley-Knight	Kn'ht.	4-4½x4½	125	32x4½	....	....	2450	3750	3750
Hanson Six 60	Cont.	6-3¼x4½	121	32x4	1595	1595	1795	†2475	2585
Hatfield A-42	H-S.	4-3½x5	115	32x4	†1315	1315	....	1950	1950
Haynes 75	Own.	6-3½x5⅛	132	34x4½	2595	†2395	2395	....	3395
Haynes 55	Own.	6-3½x5	121	33x4	1645	1595	....	2295	2595
Haynes 48	Own.	12-2¾x5	132	34x4½	4200	3635	3635	....	4950
Holmes Series 4	Own.	6-3½x4¼	126	34x4½	†2950	....	2950	3850	4150
Hudson Super 6	Own.	6-3½x5	126	34x4½	†1695	....	1745	2570	2650
Huffman R	Cont.	6-3¼x4½	120	32x4	1845	1795	....	....	2795
Hupmobile Series R	Own.	4-3¼x5½	112	32x4	1250	1250	....	2100	2150
Jackson 638	H-S.	6-3¼x5	121	32x4½	†2285	1635	....	2985	2985
Jordan MX	Own.	6-3⅞x4⅝	120	32x4	2095	2095	....	3200	3200
Jordan F	Cont.	6-3½x5¼	127	32x4½	....	....	2475	....	3500
Kenworthy 8-90	Own.	8-3 x5¼	137	32x4½	5000	5000	5250	6000	6000
Kessler K	Own.	4-3¾x3¾	117	32x4	....	1995	....	....	2445
King 8 J	Own.	8-3 x5	120	32x4½	2140	†2125	*2125	3125	3235
Kissel 45	Own.	6-3⅞x5½	124	32x4½	2675	2675	2175	3275	3475
Kline Kar 6-55-K	Cont.	6-3¼x4½	121	33x4	1890	1890	1890	3050	3090
Kurtz Automatic A	H-S.	6-3¼x5	122	32x4	....	2050	....	....	3000
LaFayette 134	Own.	8-3½x5¼	132	33x5	3985	4090	4090	5000	5175
Leach 999	Own.	6-3¼x5½	134	32x4½	6500	6500	6500	6500	6500
Lexington Series S	Anst.	6-3¼x4½	122	32x4	....	1985	....	....	2285
Lexington Series T	Anst.	6-3¼x4½	128	32x4½	....	....	2785	....	3750
Liberty 10-C	Own.	6-3½x5	117	32x4	1295	1295	†1495	2085	2245
Lincoln	Own.	8-3½x5	136	33x5	†4600	4300	4300	4950	5400
Locomobile 48	Own.	6-4½x5½	142	35x5	....	†7600	7900	10500	11000
Maibohm B	Falls.	6-3⅛x4¼	116	32x4	1395	1395	†1495	2165	2165
Marmon 34	Own.	6-3¾x5½	136	32x4½	†3700	†3700	3700	4700	5150
Maxwell	Own.	4-3½x4½	109	31x4	$ 885	$ 885	....	$1385	$1485
McFarlan 1921	Own.	6-4½x6	140	33x5	6300	†6300	$6300	7500	7500
Mercer Series 5	Own.	4-3¾x6¾	132	32x4½	3950	†3950	*3950	4850	5250
Merit	Cont.	6-3¼x4½	119	32x4	†1085	1985	....	....	....
Meteor R & RR	Dues.	4-4½x6	129	32x4½	5500	5500	....	....	....
Mitchell F-50	Own.	6-3½x5	120	33x4	‡1490	1490	†1790	2290	2440
Mitchell F-50	Own.	6-3½x5	127	33x4	....	....	1795	....	....
Monroe 1922-S-13	Own.	4-3¼x4½	115	32x3½	1295	1295	....	....	....
Monroe 1922-S-14	Own.	4-3¼x4½	115	33x4	....	....	....	2075	2175
Moon 6-48	Cont.	6-3¼x4½	122	32x4	1785	1785	2285	2785	2785
Moon 6-68	Cont.	6-3½x5¼	125	32x4½	....	....	2285	....	....
Murray-Mac Six	Own.	6-3½x5¼	128	34x4½	4250	4250	4250	....	....
Nash 681-7	Own.	6-3¼x5	121	33x4	1360	1390	1540	2000	2390
Nash 682	Own.	6-3¼x5	127	34x4½	....	....	1695	....	....
Nash Four 41-4	Own.	4-3½x5	112	33x4	1025	1045	....	1645	1835
National Sextet BB	Own.	6-3½x5¼	130	32x4½	2990	†2990	2990	4140	4240
Noma 3C	Cont.	6-3¼x4½	128	32x4½	2000	†2100	*2200	....	3200
Noma 1D	Cont.	6-3½x5¼	128	32x4½	3000	†3100	*3200	....	5500
Norwalk 430-KS	Lyc.	4-3½x5	116	32x3½	....	1035	....	....	....
Oakland 6-44	Own.	6-2¾x4¾	115	32x4	1120	1145	†1265	1685	1785
Ogren 6-T	Cont.	6-3½x5¼	134	33x5	†4250	4250	4375	5200	5500
Oldsmobile 43-A	Own.	4-3¼x5¼	115	32x4	†1145	1145	....	1645	1795
Oldsmobile 37-A	Own.	6-2¾x4¾	112	32x4	†1450	1450	....	2145	2145
Oldsmobile 46	Own.	8-2⅞x4¾	122	33x4½	....	†1735	1735	....	2635
Oldsmobile 47	Own.	8-2⅞x4½	115	32x4	1595	†1595	....	2145	2295
Overland 4	Own.	4-3⅜x4	100	30x3½	595	595	....	850	895
Packard Single-Six	Own.	6-3⅜x4½	116	33x4½	2350	2350	....	3125	3350
Packard Twin Six	Own.	12-3 x5	136	35x5	4850	4850	4850	6600	6800
Paige 6-44	Own.	6-3¼x5	119	32x4	1465	1465	....	1995	2245
Paige 6-66	Cont.	6-3¾x5	131	33x4½	†2245	†2495	2195	3100	3155
Pan American 6-55	H-S.	6-3¼x5	121	33x4	2000	2000	2100	....	....
Paterson 650	Cont.	6-3¾x4½	120	32x4½	....	1550	1585	2595	2595
Peerless 56-S-7	Own.	8-3¾x5	125	34x4½	....	†2880	2880	3500	3700
Piedmont 4-30	Lyc.	4-3½x5	116	32x3½	....	970	....	....	....
Piedmont 6-40	Cont.	6-3¾x4½	122	32x4	....	1285	....	....	....
Pierce-Arrow	Own.	6-4 x5½	138	33x5	7000	†6500	6500	8000	8500
Pilot 6-50	H-S.	6-3¼x5	126	32x4½	2285	2285	2375	3350	3400
Porter 46	Own.	4-4 x6¾	142	35x5	6750	6750	6750	....	7800
Premier 6-D	Own.	6-3⅝x5½	126¾	33x5	3150	3100	3250	....	5000
Premocar 6-40 A	Falls.	6-3½x4¼	117	32x4	1295	1295	....	1945	1995
R & V Knight R	Own.	4-3¾x5	116	32x4	....	1850	....	2650	2750
R & V Knight J	Own.	6-3½x5½	127	32x4½	3350	2750	2750	3350	3450
Reo Series B, T & U	Own.	6-3⅞x5	120	33x4	1595	....	1595	2355	2435
ReVere C	Dues.	4-4½x6	131	32x4½	4850	4650	†4650	....	6500
Rickenbacker	Own.	6-3½x3¾	117	32x4	....	1485	....	1885	1985
Roamer 6-54-E	Cont.	6-3½x5¼	128	32x4½	2850	2555	†2750	3850	3850
Roamer 4-75-E	Dues.	4-4½x6	128	32x4½	3985	†3585	†3750	....	†4650
Rolls-Royce	Own.	6-4½x4¾	143½	33x5	U. S.	Chassis	Price	11750	....
Romer R-22	Cont.	6-3¼x4½	120	33x4	1975	1975	2050	2400	2700
Saxon 125	Own.	4-3½x5	112	32x4	1195	1195	....	1795	1795
Sayers Six DP	Cont.	6-3¼x4½	118	33x4	1695	1695	....	2795	2795
Seneca L & O	LeR.	4-3½x4½	108	30x3½	1045	1045	....	....	....
Southern Six 660-2	H-S.	6-3¼x5	127	32x4½	2375	2375	2395	....	....
Sperling, A	Supr.	4-3⅝x5	114	32x4	980	980	....	1685	1685
Standard J	Own.	8-3¼x5	127	34x4½	2500	†2500	2500	3250	3500
Stanley Steamer	Own.	2-4 x5	130	34x4½	2800	2600	2600	3775	3850
Stanwood Six	Cont.	6-3¼x4½	108	33x4	1765	1765	....	2750	....
Stearns SKL4	Own.	4-3⅝x5½	125	34x4½	2250	2250	2450	3150	3450
Stephens 90	Own.	6-3¼x4½	122	33x4½	1675	†1745	*1745	2650	2650
Stevens-Duryea E	Own.	6-4½x5½	138	35x5	7250	†6900	6800	....	†8900
Studebaker Light Six	Own.	6-3½x4½	112	32x4	1045	1045	....	1375	1750
Studebaker Special Six	Own.	6-3½x5	119	32x4	1425	1475	†1475	2150	2350
Studebaker Big Six	Own.	6-3⅞x5	126	33x4½	....	....	1785	2500	2700
Stutz	Own.	4-4½x6	130	32x4½	2950	†2990	*2990	3990	4450
Templar A-445	Own.	4-3⅝x5½	118	32x4	1985	1985	....	2785	2785
Texan A-38	Lyc.	4-3½x5	115	33x4	1195	1195	....	....	....
Texan C-12	H-S.	4-3½x5	115	33x4	1350	1350	....	....	....
Tulsa E-1-2-3	H-S.	4-3½x5	117	33x4	1175	1175	....	....	....
Tulsa F-1	H-S.	6-3¼x5	119	33x4	1585	1585	....	....	....
Velie 48	Cont.	6-3¼x4½	115	32x4	1395	1395	†1800	2085	2085
Velie 34	Falls.	6-3⅛x4½	112	32x3½	1235	1235	....	1750	2085
Vogue 6-55	H-S.	6-3¼x5	124	32x4	....	1885	1960	2785	2885
Vogue 6-66	Cont.	6-3½x5¼	124	33x4½	....	2085	2160	2885	2985
Waltham 6	Own.	6-3½x5	120	32x4	2350	....	2350	3050	3150
Washington	Cont.	6-3¼x4½	116	32x4	....	1785	....	....	....
Washington Jr.	Falls.	6-3½x4¼	116	32x4	....	1635	....	....	....
Westcott C-48	Cont.	6-3½x5¼	125	32x4½	....	2090	2090	....	3490
Westcott A-44	Cont.	6-3¼x4½	120	32x4	1890	1890	†1990	2890	2890
Wills Sainte Claire A-68	Own.	8-3¼x4	121	32x4½	2875	2875	....	3750	4100
Willys-Knight 20	Own.	4-3⅝x4½	118	33x4	1475	1525	....	2195	2395
Winther 61	H-S.	6-3¼x5	120	32x4½	....	....	2250	....	....
Winton 25	Own.	6-3¾x5¼	132	35x5	4600	†4975	4600	5950	†5950

*—6-passenger. †—4-passenger. ‡—3-passenger. **—Price without starter and demountable rims. Price with starter and demountable rims $420. ††—Price without starter and demountable rims. Price with starter and demountable rims $450.

Engine Make: Anst.—Ansted. Cont—Continental. Curt—Curtiss. D.Ly—Dort Lycoming Dues.—Duesenberg. H-S—Herschell-Spillman. LeR—Leroy. Lyc—Lycoming. Nort.—Northway. Roch—Rochester. Rut—Rutenberg. Weid—Weidely. Wisc—Wisconsin.

§Model 47—34 x 4½ Tires.

Specifications of Current Motor Truck Models

NAME AND MODEL	Tons Capacity	Chassis Price	Bore and Stroke	TIRES Front	TIRES Rear	Final Drive
Acason	¾	$1650§	3¼x5	34x5†	34x5†	W
Acason, R	1	2260	3¾x5¼	36x3½	36x5	W
Acason, RB	1½	2485	3¾x5¼	36x3½	36x6	W
Acason, H	2½	3295	4⅜x5¾	36x4*	36x8*	W
Acason, L	3½	4295	4⅜x5¾	36x5*	36x10*	W
Acason, M	5	5250	5 x6¼	36x6	40x12	W
Ace, C	1½	2295	3¾x5½	34x3½*	34x5*	W
Ace, A	2½	2795	4¼x5½	36x4*	36x7	W
Acme, G	¾	....	3¾x5	35x5†	35x5†	W
Acme, B	1	....	3¾x5	34x3½	34x5	W
Acme, F	1½	....	3¾x5	34x3½	34x5	W
Acme, A	2	....	4⅛x5¼	36x4	36x7	W
Acme, AC	2½	....	4½x5½	36x4	36x7*	W
Acme, C	3½	....	4½x5½	36x4	40x10	W
Acme, E	5	....	4¾x6	36x6	40x12	W
Akr'nMulti-Trk20	1¼	1695	4 x5¼	34x5	34x5	B
American, 25	2½	3350	4 x6	30x4*	36x4d*	W
American, 40	4	4275	4½x6	36x5*	36x5d*	W
Apex, G	1	1450††	3½x5	33x5†	33x5†	I
Apex, D	1½	1915	3¾x5⅛	34x3½	34x4	I
Apex, E	2½	2695	4¼x5½	36x4	36x7	I
Apex, F	3½	3975	4½x6	36x5	36x10	I
Armleder, 20	1	....	3¾x5¼	34x3½*	34x5*	W
Armleder, HW	2½	....	4¼x5½	36x4*	36x7*	W
Armleder, KW	3½	....	4½x6	36x5	36x5d	W
Atco, B	1½	....	3¾x5¼	34x5†	36x6†	W
Atco, B1	1½	....	3¾x5¼	34x5†	36x6†	I
Atco, A	2½	....	4¼x5½	36x4†	36x8*	W
Atlas, M.D.	1	1185	3½x5	32x4½†	32x4½†	W
Atterbury, 20R	1½	2475	3¾x5	34x3½	34x5	W
Atterbury, 7CX	2½	3175	4½x5¼	36x4	36x4d	W
Atterbury, 7D	3½	3975	4½x5½	36x5	40x5d	W
Atterbury, 8E	5	4975	4¾x6	36x5	40x6d	W
Autocar, 21UF	1½-2	1950	4¾x4½	34x4*	34x5*	D
Autocar, 21UG	1½-2	2050	4¾x4½	34x4*	34x5*	D
Autocar, 26Y	5	3950	4¼x5½	34x6	36x12	D
Autocar, 26-B	5	4100	4¼x5½	34x6	36x12	D
Available, H1½	1½	2475	4 x5½	36x3½*	36x5*	W
Available, H2	2	2775	4 x5½	36x3½*	36x6*	W
Available, H2½	2½	3475	4 x5½	36x4*	36x8*	W
Available, H3½	3½	4475	4½x5½	36x5	40x5d	W
Available, H5	5	5375	4¾x6	36x6	40x12	W
Available, H7	7	6000	5 x6	36x6	40x14	B
Avery	1	....	3 x4	34x5†	34x5†	I
Beck, A Jr.	1	1950	3¾x5	34x3½	34x4	I
Beck, C	2	2550	4½x5½	36x4	36x6	I
Bell, M	1	1495	3⅝x5½	35x5	35x5†	W
Bell, E	1½	2100	3¾x5¼	34x3½	34x5	I
Bell, O	2½	2550	4½x5½	34x4	34x6	I
Belmont, D	2	2675	3¾x5	34x3½*	34x6*	D
Belmont, F	3½	3525	4 x6	36x5*	36x5d*	D
Bessemer, G	1	1395	3½x5	35x5†	35x5†	I
Bessemer, H-2	1½	1995	3¾x5	36x3½	36x5	I
Bessemer, J-2	2½	2595	4½x5¼	36x4	36x4d	I
Be somer, K-2	4	3495	4½x5½	36x5	36x10	I
Big 4, H	3½-4	5000	4½x6	36x6	36x6	W
Big 4, T	4	5500	4¾x6	36x6	36x6	W
Big 4, K	7	6000	5½x6	36x6	36x6	W
Big 4, HA	7	6000	4½x6	36x6	36x10	W
Brinton, C	1½	1500	3¾x5	34x4	34x5	W
Brinton, F	2½	2250	4½x5¼	36x4	36x7	W
Brockway, E	1	....	3¾x5⅛	35x5†	35x5†	B
Brockway, S-4	1½	....	3¾x5	36x3½*	36x5*	W
Brockway, K-5	2½	....	4½x5½	36x4	36x8	W
Brockway, R-4	3½	....	4½x5½	36x5	36x5d	W
Brockway, T-4	5	....	4¾x6	36x6	40x6d	W
Capitol, G1½	1½	2975	3¾x5	35x5	38x7	W
Capitol, H2½	2½	3700	4¼x6	36x4	36x8	W
Capitol, K2½	2½	4250	4¼x6	36x6	42x9	W
Capitol, M3½	3½	4425	4¼x6	36x5	36x10	W
Case, ††	2	3000	4¼x5¾	36x6	38x7	I
Champion Light Commercial	½	1105	3½x5	32x3½	32x3½	I
Chevrolet, G	¾	745	3⅛x4	31x4†	34x4½†	B
Chevrolet, T	1	1125	3⅛x5¼	33x4†	35x5†	W
Chicago, C1½	1½	....	3¾x5½	36x3½*	36x5*	W
Chicago, C2½	2½	....	4 x5½	36x4*	36x7*	W
Chicago, C3½	3½	....	4½x5½	36x5	36x10	W
Chicago, D5	5	....	4½x5½	36x6	40x12	W
Climber, A-20	1½	2450	3½x5	36x6*	38x7*	I
Clydesdale, 18	¾	1890	3¾x5	34x5	34x5	W
Clydesdale, 32C	1	2375	3¾x5½	34x3½*	34x5*	W
Clydesdale, 42C	1½	2475	4 x5½	36x3½	36x5	W
Clydesdale, 6SC	2½	3250	4¾x5½	36x4	36x7	W
Clydesdale, 6SEC	2½	3450	4½x5½	36x4	36x7	W
Clydesdale, 90C	3½	4100	4½x5½	36x5	40x10	W
Clydesdale, 120C	5	4500	4¾x6	36x6	40x12	W
Collier, 18	1	2350	3¾x5	34x4	34x5	W
Collier, 19	1½	2550	3¾x5	36x4	36x6	W
Collier, 21	2	2950	4½x5¼	36x4	36x7	W
Collier, 22	2½	3250	4½x5¼	36x4	36x4	I
Columbia, H	1½	2350	3¾x5	35x5†	34x5	I
Columbia, G	2½	2850	4 x5¼	36x4	36x7	I
Comet T	1½	1950	3¾x5	34x4	34x4	W
Commerce, T	¾-1¼	1450	3¾x5	34x4½†	34x4½†	B
Commerce, 12	1½	1800	3¾x5	35x5†	35x5†	I
Commerce, 16	2	2150	3¾x5	35x5†	35x6†	I
Commerce, 18	2½	2495	4½x5¼	36x6†	36x7†	I
Concord, A	2	3150	4 x5½	36x3½	36x6	W
Concord, B	3	3600	4¼x5½	36x4	36x8	W
Concord, AX	2	3250	4 x5½	36x3½	36x6	W
Concord, BX	3	3600	4½x5½	36x4	36x8	W
Cook, 41	2	3000	4 x5½	36x6†	38x7†	I
Corbitt, H-22	1	$1480	3¾x5	34x3½	34x4	W
Corbitt, E-22	1½	2200	3¾x5	34x3½	34x4	W
Corbitt, C-22	2	2600	4½x5¼	36x3½	36x6	W
Corbitt, B-22	2½	3000	4½x5¼	36x4	36x7	W
Corbitt, R-22	3	3200	4½x5½	36x4	36x8	W
Corbitt, A-22	3½-4	3800	4½x5½	36x5	36x10	W
Corbitt, AA-22	5	4500	4¾x6	36x6	40x6d	W
Day-Elder, A	1	1600	3¾x5	34x3½	34x4	W
Day-Elder, B	1½	2000	3¾x5	34x3½	34x5	W
Day-Elder, D	2	2400	4½x5¼	36x4	36x7	W
Day-Elder, C	2½	2750	4½x5½	36x4	36x7	W
Day-Elder, F	3½	3150	4½x5½	36x5	36x5d	W
Day-Elder, E	5	4250	4½x6	36x5*	40x6d*	W
Dearborn, E	1	1700	3⅝x5½	35x5†	35x5†	W
Dearborn, FX	1½	2300	3¾x5½	34x4	34x5	W
Dearborn, F	1½	2180	3¾x5⅛	34x4*	34x5*	W
Dearborn, 48	2	2590	3¾x5⅛	35x5†	34x7†	W
Defiance, G	1	1695§	3¾x5	35x5†	35x5†	I
Defiance, D	1½	2095§	3¾x5	35x5†	36x6†	I
Defiance, E	2	2275§	3¾x5	35x5†	38x7†	I
DeMartini, 1½	1½	2600	3¾x5	34x3½	34x6	W
DeMartini, 2	2	3300	4 x5½	36x3½	36x7	W
DeMartini 3	3	4250	4¼x5½	36x4	36x10	W
DeMartini 4	4	4800	4½x6	36x5	36x12	W
Denby, 31	¾	1485	3½x5	35x5	35x5	B
Denby, 33	1½	2145	3¾x5	35x5†	38x7†	I
Denby, 34	2	2395	3¾x5	36x3½	36x6	I
Denby, 25	3	3300	4½x5¼	36x4	36x7	I
Denby, 27	4	3895	4½x5½	36x5	36x5d	I
Denby, 210	5	4295	4½x5½	36x6	40x6d	I
Dependable, A	¾-1	1650	3⅝x5⅛	34x5	36x6	W
Dependable, C	1½	2350	3¾x5¼	34x3½	34x5	W
Dependable, D	2	2650	4 x5½	34x5	36x6	W
Dependable, E	2½	2950	4¼x5½	36x4	36x7	W
Dependable, G	3½	3550	4½x6	36x6	38x7	W
Diamond T, O	1-1¼	1975	3¾x5¼	36x3½†	36x4†	W
Diamond T, FS	1½	2525	3¾x5¼	36x3½	36x5	W
Diamond T, T	1½	2250	3¾x5¼	36x3½	36x5	W
Diamond T, U	2	2650	4 x5¼	36x4	36x7	W
Diamond T, K	3½	3750	4¼x5½	36x5	36x5d	W
Diamond T, EL	5	4325	4½x5½	36x6	40x6d	W
Diamond T, S	5	4500	4¾x6	36x6	40x6d	W
Diehl, A	1	....	3½x5	34x4½	35x5	I
Diehl, B	1½	....	3½x5	36x6	36x6	I
Dispatch, F	1	1350	3¾x5	34x4†	34x4†	I
Doane	2½	4100††	4¼x5¾	36x5	36x7	C
Doane	3½	5100††	4⅜x5¾	36x5	36x5d	C
Doane	6	6000††	5 x6½	36x6	40x6d	C
Dodge Brothers	½	885	3⅞x4½	32x4†	32x4†	B
Dorris, K-4	2-2½	3400	4½x5½	36x4	36x7	W
Dorris, K-7	3½	4400	4½x5½	36x5	36x10	W
Dort, 103	½	685	3½x5	31x4	31x4	B
Double Drive B	3	4000	4¼x5½	6	6	W
Douglas G	1½	1850	3¾x5½	36x5	37x8*	W
Douglas I	3	2950	4½x5½	36x6	37x8*	W
Duplex, A	1½	2775	4 x5½	35x5†	38x7†	W
Duplex, E	3½	4250	4¼x5½	36x8	36x8	I
Duty, 21	2	1490	3½x5	34x3½	34x5	I
Eagle, 100-2	2	2275	3¾x5¼	34x4*	34x7*	I
Erie, E	1½	....	3¾x5⅛	36x6†	36x6†	W
Erie, A	2½	....	4¼x5½	36x4	36x4d	W
F.W.D., B	3	4200	4½x5½	36x6	36x6	B
Facto, 1921	2½	2295§	4¼x5½	36x4*	36x8*	W
Fageol, 1½	1½	3000	3¾x5¼	34x3½*	34x6*	W
Fageol, 2½	2½	3900	4¼x5¾	34x4	36x7	W
Fageol, 3½	3½	5000	4½x6¼	36x5*	40x5d*	W
Fageol, 5	5	5700	4½x6¼	36x6	40x6d	W
Fargo, R	2	1900	3¾x5	36x4	36x6	I
Federal, SD	1½	1800	3¾x5	35x5†	36x6†	W
Federal, TE	1½	2175	4½x5½	36x3½	36x5	W
Federal, UE	2	2425	4½x5¼	36x4	36x7	W
Federal, WE	3½	3150	4½x5½	36x5	36x5d	W
Federal, X2	5-6	4550	4¾x6	36x6	40x6d	W
Ford, TT	1	445	3¾x4	30x3½*	32x4½*	W
Forschler, A	1	....	3½x5	34x3	34x4	W
Forschler, AX	1½	....	3½x5	36x3½	36x5	W
Forschler, B	2	....	4½x5¼	36x4	36x7	W
Forschler, BX	3	....	4½x5¼	36x4	36x8	W
Front Drive C	1½	2800	3¾x5½	5	4	W
G & J** 20	1	2450	3⅝x5½	34x5†	34x5†	W
G & J** A	2	3850	4x5¼	36x4	36x7	W
G & J** B	3½	5175	4½x5½	36x5	36x5d	W
G.M.C., K16	1	1495	3½x5½	34x5†	34x5†	B
G.M.C., K41 A	2	3000	4 x5½	36x4*	36x7*	W
G.M.C., K71 A	3½	4250	4½x6	36x5	40x5d	W
G.M.C., K101A	5	4650	4½x6	36x5	40x6d	W
G.W.W.	1½	1950	3¾x5½	35x5	35x5	I
Garford, 15	¾	1590	3⅝x5½	34x5†	34x5†	W
Garford, 25	1¼	1990	3¾x5½	36x3½	36x4	W
Garford, 70-H	2	2750	4¼x5½	36x4	36x7	W
Garford, 77D	3½	$4300	4½x6	36x5	36x6d	W
Garford, 68D	5	5200	5 x6½	36x6	40x6d	W
Garford, 150-A	7½	5500	5x6½	36x6	40x7d	C
Gary, F	1	2100	3¾x5	36x3½	36x4	W
Gary, I	1½	2550	4 x5½	36x3½	36x5	W
Gary, J	2½	3150	4¼x5½	36x4	36x7	W
Gary, K	3½	4050	4½x6	36x5	40x5d	W
Gary, M	5	5150	5 x6½	36x6	40x6d	W
Gersix, M	1½	3100	4 x5½	36x3½	36x7	W
Gersix, K	2½	3500	4¼x5½	36x4	36x8	W
Gersix	3½	4500	4½x6	36x5	40x12	W
Golden West, GH	3	4500	4½x6	36x7	36x7	W
Golden West, G	3½	5000	4½x5½	36x6	36x6	W
Graham Bros. 1-Ton	1	1370	3⅞x4½	36x4½	34x5	B
Graham Bros. A	1½	1430	3⅞x4½	33x4½†	36x6†	B
Gramm-Bern., 10	1	1365§	3½x5	33x5†	33x5†	F
Gramm-Bern., 15	1½	2050§	3¾x5	36x3½*	36x5*	I
Gramm-Bern., 65	1½	2725§	3¾x5	36x3½*	36x5	W
Gramm-Bern., 20	2	3175§	4½x5¼	36x4*	36x7*	W
Gramm-Bern., 25	2½	3575§	4¼x5½	36x4*	36x4d*	W
Gramm-Bern., 35	3½	4375§	4½x5½	36x5	40x5d*	W
Gramm-Bern., 50	5	5275§	4¾x6	36x6	40x6d*	W
Hahn, J4	1	....	3¾x5	34x5*	34x5*	W
Hahn, CD	1½	....	4¼x5¼	36x3½*	36x6*	W
Hahn, EE	2½	....	4½x5½	36x4*	36x8*	W
Hahn, F	3½	....	4½x5½	36x5*	36x10*	W
Hahn, EF	5	....	4¾x6	36x6	40x12	W
Hal-Fur, E	1½	2350	4 x5¼	34x5†	38x7†	W
Hal-Fur, B	2½	3000	4¼x5½	35x5*	38x7*	W
Hal-Fur, F	3½	4000	4½x5½	36x6†	40x10†	W
Hall, 1½	1½	3100	3¾x5	34x5†	38x7†	W
Hall, 2½	2½	3275	4½x5¼	36x4	36x6	W
Hall, 3½	3½	4100	4½x5½	36x5	36x5d	W
Hall, 5	5	5100	4½x5½	36x5	40x6d	W
Hall, 7 chain	7	5100	4½x5½	36x5	40x6d	C
Harvey, WEA	1½	2550	4½x5½	34x3½	34x5	W
Harvey, WOA	2	2950	4½x5½	34x4	34x7	W
Harvey, WFA	2½	3300	4¼x5½	36x4	36x7	W
Harvey, WHA	3½	3950	4½x6	36x5	36x5d	W
Harvey, WKA	5	4500	4½x6	36x6	40x6d	W
Hawkeye, K	1½	1850	3¾x5¼	34x3½*	34x5*	I
Hawkeye, M	2	2650	4¼x5½	36x4*	36x6*	I
Hawkeye, N	3½	3700	4½x6	36x5*	36x10*	I
Hendrickson, N	2½	3150	4¼x5¾	36x4*	36x7*	W
Hendrickson, M	3½	3975	4¼x5¾	36x5*	36x5d*	W
Huffman, B	1½	1995	3¾x5	34x3½	34x6	W
Huffman, C	1½	1795	3¾x5½	34x3½	34x6	I
Hurlburt A	1½	2850	4 x5½	34x4	34x5	W
Hurlburt B	2½	3750	4¼x5½	36x4	36x4d	W
Hurlburt C	3½	4590	4½x6	36x5	36x5d	W
Hurlburt D	5	5500	4½x6	36x5	40x6d	W
Indep'd't(Iowa), B	1	1665	3½x5	34x3½	34x4	W
Indep'd't(Iowa), G	1½	2040	3¾x5¼	34x3½	34x5	I
Indep'd't(Ia.), H.1	2½	2940	4¼x5¼	34x4	34x6	I
Indep'd't(Ohio), F	1½	2385	3¾x5	36x3½	36x5	W
Indep'd't(Ohio), H	2½	3085	4¼x5¼	36x4	36x4d	W
Indep'd't(Ohio), K	3½	3985	4½x5½	36x5	36x5d	W
Indiana, 12	1½	....	3¾x5¼	34x3½*	34x5*	W
Indiana, 20	2	....	4¼x5½	36x4*	36x7*	W
Indiana, 25	2½	....	4½x5½	30x4*	36x8*	W
Indiana, 35	3½	....	4¾x5½	36x5*	36x5d*	W
Indiana, 51	5	....	5 x6¼	36x5*	40x6d*	W
Inland, D	2	2950	4 x5	34x5	34x6	I
International, S	¾	1500	3½x5	34x5†	34x5†	I
International, 21	1	1750	3½x5¼	36x3½	36x3½	I
International, 31	1½	1850	3½x5¼	36x3½	36x4	I
International, 41	2	2100	3½x5¼	36x3½	36x5	I
International, 61	3	2400	4½x5	36x4	36x6	I
International, 101	5	3600	4½x5	36x5	40x10	I
J & J, D	2	3250	4 x5	34x4*	34x6	I
Jackson, 4WD	3½	3850	4½x5½	36x7	36x7	B
Jumbo, 15	1½	2425	3¾x5¼	36x3½	36x5	I
Jumbo, 20	2	2675	3¾x5¼	35x5†	38x7†	I
Jumbo, 25	2½	3090	4½x5½	36x4	36x7.	I
Jumbo, 30	3	3590	4¼x5½	36x6†	42x9†	I
Jumbo, 35	3½	4080	4½x6	36x5	36x10†	I
Jumbo, 40	4	4730	4½x6	38x7†	44x10	I
K-Z, 1	1	1750	3½x5	34x3½	34x5	W
K-Z, 1½	1½	2075	3¾x5	36x4	36x6	W
K-Z, 2½	2½	2550	4½x5¼	36x4	36x8	W
K-Z, 3½	3½	3350	4½x5½	36x5	40x10	W
K-Z, 5	5	3850	4½x5½	36x6	40x6d	W
Kalamazoo, G-1	1½	2495	3¾x5	34x4	34x5	W
Kalamazoo, G-2	1½	2800§	3¾x5	36x5	36x6	W
Kalamazoo, H	2½	3275§	4 x6	36x4	36x8	W
Kalamazoo, K	3½	4000§	4½x6	36x5	36x10	W
Kalamazoo K-5	5	4500§	4½x6	36x6	36x6d	W
Karavan, A	2½	3900	4½x6	36x4	36x8	W
Kearns, H	1	1600	3¼x4½	32x4½†	32x4½†	I
Kearns, N	2	2280	3½x5	34x3½	34x6	I
[1]Kelly-S., K-31	1½	2900	3¾x5¼	36x3½	36x6	C
[1]Kelly-S., K-34	1½	2900	3¾x5¼	36x3½	36x6	W
[1]Kelly-S., K-38	2½	3250	3¾x5¼	36x4	36x4d	W
[1]Kelly-S., K-35	2½	3250	3¾x5¼	36x4	36x4d	C
[1]Kelly-S., K-40	3½	4200	4¼x6½	36x5	40x5d	C
[1]Kelly-S., K-41	3½	4200	4¼x6½	36x5	40x5d	I
[1]Kelly-S., K-42	3½	4200	4¼x6½	36x5	40x5d	W

*2-cyl. †6-cyl. ‡8-cyl. All others, not marked, are 4-cyl. Trac., Tractor. **Canadian made.

Final Drive: W—Worm, I—Internal Gear, C—Chains, D—Double Reduction, B—Bevel, 4—Four-Wheel, E—External Gear. *Tires—optional. †Pneumatic Tires. All others solid. ††Price includes body. §—Price includes several items of equipment.

1—Kelly-Springfield.

Specifications of Current Motor Truck Models—Continued

NAME AND MODEL	Tons Capacity	Chassis Price	Bore and Stroke	TIRES Front	TIRES Rear	Final Drive
[1]Kelly-S., K-45	4	$4550	4½x6½	36x5	40x6d	C
[1]Kelly-S., K-50	5	4900	4½x6½	36x6	40x6d	C
[1]Kelly-S., K-60	6	5100	4½x6½	36x6	40x7d	C
Keystone, 40	2	2450	3¾x5½	34x5†	38x7†	I
Kimball, AB	2	3675	4 x6	36x4	36x7	W
Kimball, AC	2½	3975	4¼x6	36x4	36x8	W
Kimball, AK	3	4500	4½x6	36x4	36x10	W
Kimball, AE	4	5000	4¾x6	36x5	40x12	W
Kimball, AF	5	5800	5 x6	36x6	40x7d	W
Kissel, Express	1	1935††	3⅞x5½	34x5†	34x5†	W
Kissel, Utility	1½	1975	3⅞x5½	36x3½	36x5	W
Kissel, Freighter	2½	2875	4¼x5½	36x4	36x7	W
Kissel, H. D.	4	3675	4¼x5½	36x5	36x5d	W
Kleiber, AA	1	2600	1⅛x5¼	34x3½*	34x5*	W
Kleiber, A	1½	3100	4⅛x5¼	36x3½*	36x6*	W
Kleiber, BB	2	3600	4⅛x5¼	36x4*	36x7*	W
Kleiber, B	2½	3950	4½x5½	36x5*	36x8	W
Kleiber, C	3½	4600	4½x5½	36x5	36x5d	W
Kleiber, D	5	5300	5 x6½	36x6	40x12	W
Koehler, D	1½	1995	3½x5	34x3½	34x5	W
Koehler, M	2½	3175	1 x5½	36x4	36x7	W
Koehler, MCS	2½	3275	4 x5½	36x4	36x7	W
Koehler, E	3½	4150	4½x5½	36x5	36x10	W
Koehler, MT, Trac.	5	3275	4 x5½	36x4	36x7	W
Lange, B	2½	3350	4¼x5¼	36x4*	36x7*	C
Larrabee, X-Z	1	1025	3¼x4½	34x5†	34x5†	B
Larrabee, U	1½	2400	3¾x5	34x3½	34x5	W
Larrabee, K	2½	3200	4⅛x5¼	36x4	36x7	W
Larrabee, L-4	3½	4000	4½x5½	36x5	36x5d	W
Larrabee, W	5	4800	4¾x6	36x6	40x6d	W
Luedinghaus, C	1	1695	3½ 5	35x5†	35x5†	W
Luedinghaus, W	1½	2490	3¾x5¼	34x3½*	34x5*	W
Luedinghaus, K	2-2½	3150	1¼ 5¾	36x1*	36x7*	W
Maccar, L	1½	2700	4⅛x5¼	36x4	36x6	W
Maccar, H-A	2	3100	4½x5¼	36x4	36x4d	W
Maccar, H-2	3	3400	4½x5½	36x4	36x4d	W
Maccar, M-2	4	4200	4½x6	36x5	36x5d	W
Maccar, G	5-6	4950	4¾x6	36x5	40x6d	W
MacDonald, A	7½	5750	4½x6	40x7	40x14	I
Mack, AB D.R.	1½	3150	4 x5	36x4	36x3½d	D
Mack, AB	2½	3400	4 x5	36x4	36x4d	C
Mack, AB Chain	1½	3000	4 x5	36x4	36x3½d	C
Mack, AB Chain	2	3300	4 x5	36x4	36x4d	C
Mack, AB D.R.	2	3750	4 x5	36x4	36x4d	D
Mack, AC Chain	3½	4950	5 x6	36x5	40x5d	C
Mack, AC Chain	5	5500	5 x6	36x6	40x6d	C
Mack, AC Chain	6½	5750	5 x6	36x6	40x12	C
Mack, AC Chain	7½	6000	5 x6	36x7	40x7d	C
Mack Trac, AB	5	3400	4 x5	36x4	36x4d	C
Mack Trac., AC	7	4950	5 x6	36x5	40x5d	C
Mack Trac. AC	10	5500	5 x6	36x6	40x6d	C
Mack Trac., AC	13	5750	5 x6	36x6	40x12	C
Mack Trac., AC	15	6000	5 x6	36x7	40x7d	C
Mapleleaf, AA**	2	4150	4 x5¼	36x4	36x7	W
Mapleleaf, BB**	3	4775	4¼x5½	36x4	36x4d	W
Mapleleaf, CC**	4	5770	4½x5½	36x5	36x5d	W
Mapleleaf, DD**	5	6490	4½x5½	36x6	40x6d	W
Master, JW	1½	2690	4⅛x5¼	34x3½	34x5	W
Master, W	2½	3290	4¼x5½	34x4	36x7	W
Master, D	2½	3540	4¼x5½	34x4	36x7	D
Master, A	3½	4190	4½x6	36x5	40x5d	W
Master, E	3½	4640	4½x6	36x5	40x5d	D
Master, B	5	5290	4¾x6½	36x6	40x6d	W
Master, F	5	5440	4¾x6½	36x6	40x6d	D
Master Trac., T	6	3740	4¼x5½	34x4	36x7	D
Maxwell, 1½	1½	932	3⅝x4¼	32x3	32x4	W
Menominee, HT	1	2080	3¾x5	34x3½	36x5	W
Menominee, H	1½	2725	4 x5	36x3½	36x5	W
Menominee, D	2	3245	4 x6	36x4	36x8	W
Menominee, G	3½	4270	4½x6	36x5	36x10	W
Menominee, J-3	5	5450	4¾x6	36x6	40x12	W
Moline, 10	1½	1985	3½x5	34x5†	36x6†	I
Moreland, 21B	1½	2800	4½x5½	36x3½	36x6	W
Moreland, 21C	2½	3500	4½x5½	36x4	36x8	W
Moreland, 21H	3½	4600	4¾x6	36x5	40x5d	W
Moreland, 21J	5	5000	4¾x6	36x6	40x6d	W
Napoleon, 7	¾	1350	3½x5	38x4	33x4†	I
Napoleon, 9	1	1535	3½x5	35x5*	35x5*	I
Napoleon, 11	1½	1860	3½x5	35x5*	36x6*	I
Nash, 2018	1	1895	3¾x5¼	35x5	36x6	I
Nash, 3018	2	2550	3¾x5¼	36x6	40x8	I
Nash, Quad.	2	3250	4¼x5½	40x8	40x8	I
Nash, 5018	2½	2550	3¾x5¼	34x4	34x6	I
[2]Nelson, F1½	1½	....	4½x5½	36x3½	36x5	W
[2]Nelson, F2	2	....	4½x5½	36x4	36x7	W
[2]Nelson, F3½	3½	....	4½x5½	36x5	36x5d	W
[2]Nelson, FC5	5	....	4¾x6	36x6	40x6d	W
Netco, D	2	3100	4⅛x5¼	36x4*	36x7*	W
Netco, H	2½	3500	4½x5½	36x4*	36x8*	W
New York, M	1½	....	4⅛x5¼	36x3½	36x5	W
New York, N	2-2½	....	4⅛x5¼	36x4	36x4d	W
Niles, E	2	3000	4¼x5¼	36x4*	36x7*	W
Noble, B30	1½	2100	3¾x5¼	36x3½	36x5	W
Noble, C40	2	2675	4 x5½	36x4	36x7	W
Noble, D50	2½	2950	4¼x5½	36x4	36x8	W
Noble, E70	3½	3800	4½x6	36x5	36x10	W
Northway, B-2	2	3400	4 x6	36x4	36x4d	W
Northway, B-3	3½	4400	4 x6	36x5	40x5d	W
NorthwesternW	1½	2700	4⅛x5¼	34x4	36x6	W
Northwestern WS	2½	3500	4½x5½	36x4	36x8	W
Norwalk, 25E	1	1695	3½x5	34x3½	34x4	W
Norwalk, 35E	1½	2025	3½x5	34x3½	34x3½d	W
Norwalk, 35E Spec	1½	2285	3¾x5¼	34x3½	34x5	W
O. K., K1	1½	$2675	4 x5½	36x3½	36x5	W
O. K., L1	2½	3450	4¼x5½	36x4	36x8	W
O. K., M1	3½	4250	4½x6	36x5	36x5d	W
Ogden, A1	1½	2375	3¾x5	36x3½	36x5	W
Ogden, E	2½	2975	4⅛x5¼	36x4	36x7	W
Old Hickory, W	1	2175	3¾x5	36x3½*	36x4*	W
Old Reliable, A	1½	2350	4 x5	34x4	36x6	W
Old Reliable, B	2½	3500	4¼x6	34x4	36x4d	W
Old Reliable, C	3½	4250	4¼x6	36x5	36x5d	W
Old Reliable, D	5	5250	4¾x6	36x6	40x6d	W
OldReliable, KLM	7	6000	4¾x6¼	36x6	40x7d	C
Oldsmobile Econ.	1	1095	3⅛x5¼	35x5†	35x5†	I
Olympic, A	2½	3500	4¼x5½	36x4	36x7	W
Oshkosh, A	2	3750	3½x5	36x6†	36x6†	4
Oshkosh, AA	2	3850	3½x5	36x6†	36x6†	4
Oshkosh, B	2½	4150	4 x5⅛	38x7†	38x7†	4
Oshkosh, BB	2½	4300	4 x5⅛	38x7†	38x7†	4
Packard, EC	1½-3	3500	4⅜x5½	36x4	36x7	W
Packard, EX	1½-3	4000	4⅜x5½	36x6†	40x8†	W
Packard, ED	2-4½	4100	4½x5½	36x5	36x5d	W
Packard, EF	4-7½	4500	5 x5½	36x6	40x6d	W
Paige, 52-19	1½	2880	4 x5¼	34x3½	34x5	W
Paige, 54-20	2½	3400	4¼x5½	34x4	34x8	W
Paige, 51-18	3½	4285	4½x5½	36x5	36x5d	W
Parker, F20	2	3500	4 x6	34x4	36x4d	W
Parker, J20	3½	4400	4½x6	36x5	40x5d	W
Parker, M20	5	5500	4¾x6	36x6	40x6d	W
Patriot, Revere	1	1500	3¾x5	35x5†	35x5†	W
Patriot, Lincoln	2	2050	4 5¼	34x3½	34x5	W
Patriot, Washgt'n	3	2900	4½x5½	36x4	36x7	W
Piedmont, 4-30	1	1200	3½x5	34x4†	34x4†	W
Pierce-Arrow	2	3200	4 x5½	36x4	36x4d	W
Pierce-Arrow	3½	4350	4½x6¾	36x5	36x5d	W
Pierce-Arrow	5	4850	4½x6¾	36x5	40x6d	W
Pioneer, 59	1	1550	3¾x4¼	32x4½†	32x4½†	W
Pittsburger, C-21	3	3800	4⅛x5¼	36x5*	36x7*	W
Power, F	2	3400	3¾x5¼	36x6	36x6	W
Power, C	3½	4500	4¼x5½	36x5	40x10	W
Premocar, B-143	1½	2475	3½x5	36x6†	36x6†	W
Rainier, R-21	¾	1990	3½x5	35x5†	35x5†	W
Rainier, R-19	1	2150	3½x5	34x3½	31x4	W
Rainier, R-16	1½	2490	3¾x5	34x3½	34x5	W
Rainier, R-18	2	2690	4⅛x5¼	34x4	34x6	W
Rainier, R-20	2½	3550	4⅛x5¼	34x4	34x7	W
Rainier, R-15	3½	4400	4½x5½	36x5	36x5d	W
Rainier, R-17	5	5100	4½x6	36x6	36x6d	W
Ranger, TK-22-2	2	2775	3¾x5	36x6†	38x7†	W
Reo, F	¾-1¼	1245	4⅛x4½	34x4½†	34x4½†	B
Reliance, 10A	1¼	2400	4 x5½	36x3½	36x5	I
Reliance, 20B	2½	3100	4¼x5½	36x4	36x4d	I
Republic, 75	¾	1395††	3½x5	32x4½	32x4½	I
Republic, 10	1	1395	3¾x5	35x5†	35x5†	I
Republic, 10Exp.	1	1695	3¾x5	35x5†	35x5†	I
Republic, 11X	1½	1795	3¾x5	34x3½	34x5	I
Republic, 19	2½	2155	4⅛x5¼	36x4	36x7	I
Republic, 20	3½	3095	4½x5½	36x5	36x10	I
Rowe, CW	1½	3000	3¾x5	36x6†	36x6†	W
Rowe, C. D. W.	2	3300	4 x5	34x4	36x3½d	W
Rowe, G. S. W.	3	4150	4 x6	34x5	36x5d	W
Rowe, G. P. W.	3	5250	3¼x5†	38x7†	42x9†	W
Rowe, HW	4	4500	4¼x6	36x5	36x6d	W
Rowe, F. W.	5	5500	4½x6	36x6	40x6d	W
Sandow, G	1	2295	3¾x5	34x3½	34x5	W
Sandow, CG	1½	2590	3¾x5	34x4	34x6	W
Sandow, J	2½	3275	4⅛x5¼	36x4	36x7	W
Sandow, M	3½	4295	4½x5½	36x5	36x5d	W
Sandow, L	5	4975	4½x5½	36x6	40x6d	W
Sanford, 25	2½	3350	4½x5¼	36x4	36x4d	W
Sanford, 35	3½	4200	4½x5½	36x5	36x5d	W
Sanford, 50	5	5100	4¾x6	36x5	40x6d	W
Schacht, 2-Ton	2	3200	4¼x5½	36x4	36x7	W
Schacht, 3-Ton	3	3800	4¼x5½	36x5	36x5d	W
Schacht, 4-Ton	4	4200	4¼x6	36x5	36x5d	W
Schacht, 5-Ton	5	4400	4½x6	36x5	40x5d	W
Schacht, 7-Ton	7	5000	4½x6	36x6	40x7d‖	W
Schwartz, A	1	1675	3¼x5	33x4½†	33x4½†	B
Schwartz, BW	1½	2600	3¾x5½	34x3½*	34x7*	W
Schwartz, C.W.S.	2½	3200	4¼x5½	36x4	36x8	W
Schwartz, DW	5	4900	4½x6	36x6	40x12	W
Selden, 1½A	1½	2360	3¾x5	34x3½	34x5	W
Selden, 2½A	2½	3425	4⅛x5¼	36x4	36x7	W
Selden, 3½A	3½	4175	4½x5½	36x5	36x10	W
Selden, 5A	5	5600	4¾x6	36x6	40x12	W
Seneca, M	½	1020	3½x4½	30x3½†	30x3½†	B
Service, 15	1¼	1840	3¾x5	34x4½	35x5	B
Service, 220	1½	2415	3½x5¼	34x3½	34x5	W
Service, 31	2	2985	4 x5½	36x3½	36x6	W
Service, 36	2	3415	4¼x5½	35x5†	38x7†	W
Service, 51	2½	3475	4½x5½	36x4	36x7	W
Service, 71	3½	4285	4¼x5½	36x5	36x5d	W
Service, 76	3½	4485	4½x6	36x5	36x5d	W
Service, 101	5	5275	4½x6	36x6	40x6d	W
Signal, NF	1	1950	4¾x5	34x5†	36x6†	W
Signal, H	1½	2450	4⅛x5¼	34x4	36x6	W
Signal, J	2½	2875	4¼x5¼	34x4	36x8	W
Signal, M	3½	3675	4½x5½	36x5	40x5d	W
Signal, R	5	§4400	4¾x6	36x6	40x6d	W
Southern, 10	1	2090	3¾x5	34x3½	34x4	W
Southern, 15	1½	2590	3¾x5½	36x6†	34x4	W
Southern, 20	2	2990	4¾x5¼	36x6†	40x8*	W
Standard, 1-K	1-1½	1680	3¾x5	34x3½*	34x5*	W
Standard, 76	2½-3	2400	4½x5¼	36x4*	36x7*	W
Standard, 66	3½-4	3150	4½x5½	36x5	36x10	W
Standard, 5-K	5-7	4400	4¾x6	36x6	40x12	W
Sterling, 1½	1½	2885	4 x5¾	36x3½	36x5*	W
Sterling, 2	2	3085	4 x5¾	36x4	36x6	W
Sterling, 2½	2½	3290	4⅜x5¾	36x4*	36x4d*	W
Sterling, 3½	3½	4325	4½x6¼	36x5*	40x5d*	W
Sterling, 5-W	5	4950	5 x6¼	36x6*	40x6d*	W
Sterling, 5-C	5	5500	5 x6¼	36x6	40x6d	C
Sterling, 7½	7½	6000	5 x6¼	36x6	40x7d	C
Stewart, 14	¾	1195	3½x5½	32x4½†	32x4½†	I
Stewart, 15	1	1395	3½x5½	35x5†	35x5†	I
Stewart, 9	1½	1790	3¾x5	34x3½	34x5	I
Stewart, 7	2	2090	4¼x5¼	34x4	34x7	I
Stewart, 7-X	2½	2290	4¼x5½	34x4	34x7	I
Stewart, 10	3½	3090	4½x5½	36x5	36x5d	I
Stewart, 10-X	3½	3850	4½x6	36x5	36x5d	I
Stoughton, C	¾	1240	3½x5	34x4½†	34x4½†	W
Stoughton, A	1	1995	3¾x5¼	34x4½†	35x5†	W
Stoughton, B	1½	2350	3¾x5¼	36x3½	36x5	W
Stoughton, D	2	2800	4 x5⅛	36x4	36x7	W
Stoughton, F	3	3600	4¼x5½	36x5d	36x5d	W
Sullivan, E	2	3350	4¼x5½	36x4*	36x7*	W
Sullivan, H	3½	4650	4½x6	36x5	36x5d	W
Superior, D	1	1650	3¾x5	34x4½†	34x4	I
Superior, E	2	2600	4¼x5¼	36x4	36x6	I
Super Truck, 50	2½	3300	4 x6	36x4	36x8	W
Super Truck, 70	3½	4300	4¼x6	36x5	40x5d	W
Super Truck, 100	5	5300	4¾x6	36x5	40x12	W
Super Truck, 150	7½	6300	5 x6	36x6	40x7d	W
Texan, A38	¾	1095	3½x5	33x4	33x4	I
Texan, TK39	1½	1550	3½x5	36x6	38x7	W
Tiffin, GW	1½	2400	4¼x5¼	36x3½	36x5	W
Tiffin, MW	2½	3100	4¼x5¼	36x4	36x3½d	W
Tiffin, PW	3½	4100	4½x5½	36x5	40x5d	W
Tiffin, F50	5	4800	4¾x6	36x6	40x6d	W
Tiffin, F60	6	5000	4¾x6	36x6	40x12	W
Titan	3½	4100	4¼x5½	36x5	36x10	I
Titan	5	4750	4½x6	36x5	40x6d	I
Titan	2	2850	4x5	34x4*	36x7	I
Titan, 6-Ton	6	5150	4½x6	36x5	40x12	I
Tower, J	1½	2900	4½x5¼	35x5	38x7	W
Tower, H	2½	3200	4¼x5¼	36x4	36x7	W
Tower, G	3½	4100	4½x5½	36x5	36x5d	W
Traffic, C	....	1595	3¾x5	34x3½*	34x5*	I
Traffic	3	1895	3¾x5	36x4	36x7	I
Transport, 20	1	1395	3¾x5½	34x3½	34x4	I
Transport, 30	1½	1995	3¾x5	36x3½	36x5	I
Transport, 50	2½	2785	4¼x5½	36x4	36x7	I
Transport, 70	3½	3885	4½x6	36x5	36x10	I
Traylor, B	1½	2390	3¾x5½	34x3½	34x5	W
Traylor, C	2	2850	4 x5½	36x4	36x7	W
Traylor, D	3	3300	4¼x5½	36x4	36x8*	W
Traylor, E	4	4450	4½x6	35x5	40x10	W
Traylor, F	5	4700	4½x6	36x6	40x6d	W
Triangle, AA	¾-1	1385	3¼x5	34x4½†	34x4½†	I
Triangle, A	1½	2350	3¾x5¼	34x3½*	34x6*	I
Triangle, C	2	2700	3¾x5¼	36x4*	36x6*	I
Triangle, B	2½	2950	4 x5¾	36x4*	36x7*	I
Triumph, G	1	1995	3½x5½	34x5†	34x5†	W
Triumph, HC	1½	2550	3¾x5¼	36x3½	36x5	W
Triumph, HB	2	2900	3¾x5¼	36x4	36x7	W
Twin City, B.W.	2	2750	4 x5½	36x4	36x7	I
Twin City, A.W.	3½	4000	4¼x6	36x5	40x5d	W
[3]Twin City, B	3½	....	5½x6	36x6	36x6	I
[3]Twin City, A	5	....	5½x6	36x7	36x7	I
Ultimate, A	2	3200	4 x5½	36x3½*	36x6*	W
Ultimate, AJ	2	3250	4¼x5½	35x5†	38x7†	W
Ultimate, AJL	2	3300	4½x5½	36x3½	36x6	W
Ultimate, B	3	3750	4¼x5½	36x4*	36x4d*	W
Ultimate, BL	3	3850	4¼x5½	36x4*	36x4d*	W
Union, FW	2½	3190	4 x6	36x5*	36x8*	D
Union, HW	4	4485	4½x6	36x6	40x12	D
Union, JW	6	5800	5 x6	36x6	40x14	D
United, A	1½	2445	3¾x5¼	36x3½	34x5*	I
United, B	2½	3150	4¼x5½	36x4*	36x7*	I
United, C	3½	3975	4¼x5½	36x5	36x5d	I
United, V	5	5000	4½x6	36x6	40x6d	I
United States, N	1½	1975	3¾x5	36x3½*	36x5*	I
United States, R	3	3075	4 x5¼	36x4	36x4d	W
United States, S	4	3875	4½x5½	36x5	36x5d	W
United States, T	6	4850	4¾x6½	36x6	40x6d	W
Velie, 46	1½	1585	3¾x5	36x3½	36x5	I
Veteran, E**	1-1½	3500	3¾x5¼	35x5†	36x6†	W
Veteran, A**	2-2½	4000	4¼x5½	36x4*	36x7*	W
Veteran, D**	2½-3	4400	4¼x5½	36x4*	36x7*	W
Veteran, H**	3½-4	5600	4¼x6	36x5	36x5d	W
Vim, 29	½	1050	3½x4½	31x4†	31x4†	W
Vim, 30	½	1175	3½x4½	32x4½	32x4½	W
Vim, 31	1	1975	3¾x5½	35x5†	35x5†	W
Vim, 22	2	3150	3¾x5½	36x4	36x6	W
Vim, 23	3	3950	4¼x5½	36x5	36x5d	W
Vulcan, 25	2½	4000	4¼x6	36x4	36x8	W
Vulcan, 25P	3	4500	4¼x6	36x6	40x8	W
Walker-JohnsonA	1½-2	2750	3¾x5	34x5	38x7	W
Walker-Johnson,B	3	3500	4¼x5½	36x4	36x8	W
Walter, S	5	4850	4½x6¼	36x6	40x6d	W
Ward-LaF., 2B	2½	3590	4⅜x5¾	36x4	36x7	W

*2-cyl. †6-cyl. ‡8-cyl. All others, not marked, are 4-cyl. Trac., Tractor. **Canadian made.

Final Drive: W—Worm, I—Internal Gear, C—Chains, D—Double Reduction, B—Bevel, 4—Four-Wheel, E—External Gear. *Tires—optional. †Pneumatic Tires. All others solid. ††Price includes body. §—Price includes several items of equipment.

1—Kelly-Springfield. 2—Nelson Le Moon. 3—Twin City Four Wheel Drive.

Specifications of Current Motor Truck Models—Continued

NAME AND MODEL	Tons Capacity	Chassis Price	Bore and Stroke	TIRES Front	TIRES Rear	Final Drive
Ward-LaF., 4A	3½	$4690	4½x6¼	36x5	36x5d	W
Ward-LaF., 5A	5	5590	5 x6¼	36x6	40x6d	W
Watson, E	1	1785	3¾x5¼	35x5†	35x5†	W
Watson, N	3½	3825	4½x5½	36x5	36x10	W
Western, W1½	1½	2550	4½x5¼	36x3½*	36x5*	W
Western, L1¼	1½	2550	3¾x5	36x3½*	36x5*	W
Western, W2½	2½	3250	4½x5¼	36x4	36x7	W
Western, L2½	2½	3250	4¼x6	36x4	36x7	W
Western, W3½	3½	4250	4½x6	36x5	40x5d	W
White, 15	¾	2400	3¾x5½	34x5†	34x5†	B
White, 20	2	3250	3¾x5½	36x4*	36x7	D
White, 40	3½	4200	3¾x5¾	36x5	40x5d	D
White, 45	5	4500	4¼x5¾	36x6	40x6d	D
White Hick., E	1	1225	3¾x5	34x5†	34x5†	W
White Hick., H	1½	1375	3¾x5	36x3½	36x5	W
White Hick., K	2½	1675	4¼x5¼	36x4	36x5	W
Wichita, K	1	2300	3¾x5¼	36x3*	36x4*	W
Wichita, L	1½	2600	3¾x5¼	36x3½*	36x5*	W
Wichita, M	2	2800	3¾x5¼	36x3½*	36x6*	W
Wichita, R	2½	3000	3¾x5¼	36x4*	36x7*	W
Wichita, RX	2½	$3600	4¼x6	36x4*	36x8*	W
Wichita, O	3½	4000	4¼x6	36x5*	36x5d*	W
Wichita, S	5	5000	4½x6	36x6	40x6d	W
Wilcox, AA	1	1900	3¾x5½	36x4*	36x4*	W
Wilcox, BB	1½	2550	4¼x5	36x4	36x5	W
Wilcox, D	2½	3000	4¼x5	36x4*	36x3½d*	W
Wilcox, E	3½	3950	4½x6	36x5*	36x5d*	W
Wilcox, F	5	4350	4¾x6½	36x5	40x6d	W
Wilson, F	1½	2270	3¾x5	36x3½	36x5	W
Wilson, EA	2½	2825	4½x5¼	36x4	36x7	W
Wilson, G	3½	3685	4½x5½	36x5	36x5d	W
Wilson, H	5	4520	4¾x6	36x6	40x6d	W
Winther, 751	1	$1795	3½x5	34x4½†	35x5†	I
Winther, 430	1½	2850	3¾x5	32x4	32x4	I
Winther, 39	1½	2450	3¾x5	34x3½	34x5	I
Winther, 49	2	3250	4 x5	34x4	34x4d	I
Winther, 50	2½	3995	4 x6	38x7†	42x9†	I
Winther, 70	3½	4200	4 x6	36x5	36x5d	I
Winther, 450	2½	3690	4 x5	34x5	36x6	I
Winther, 109	5	5250	4½x6	36x6	40x5d	I
Winther, 140	7	5900	5 x6	36x6	40x7d	I
Wisconsin, B	1	1950	4 x5¾	34x5†	34x5†	W
Wisconsin, C	1½	2500	4¾x5¾	36x6†	36x6†	W
Wisconsin, D	2½	3500	4½x6¼	36x6	36x10	W
Wisconsin, E	3½	4000	5 x6¼	36x6†	36x12†	W
Witt-Will, N	1½	2750	3¾x5	36x3½*	36x5*	W
Witt-Will, P	2½	3250	4½x5¼	36x3½*	36x7*	W
Wolverine, J	1	2125	3½x5	34x3	34x4	I
Wolverine, J	1½	2375	3¾x5	34x3½	34x5	I
Wolverine, J	2	2640	3¾x5	34x4	34x7	I
Wolverine, J	2½	3425	4½x5½	36x5	36x10	I
Wolverine, L	3½	4100	4½x5½	36x5	36x10	I

*2-cyl. †6-cyl. ‡8-cyl. All others, not marked, are 4-cyl. Trac., Tractor. **Canadian made.

Final Drive: W—Worm, I—Internal Gear, C—Chains, D—Double Reduction, B—Bevel, 4—Four-Wheel, E—External Gear. *Tires—optional. †Pneumatic Tires. All others solid. ††Price includes body. §—Price includes several items of equipment.

Farm Tractor Specifications and Prices

TRADE NAME	Rating	Price	Wheels or Crawlers	Engine	Cylinders: Bore, Stroke	Fuel	Plow Capacity
All-In One	16-30	$1975	3	Clim.	4-5 x6½	GDK	3-4
Allis-Chalm. B	6-12	925	2	LeR.	4-3½x4½	Gas.	1
Allis-Chal.G.P	6-12	795	2	LeR.	4-3½x4½	Gas.	1-2
Allis-Chalm.	12-20	1350	2	Midw.	4-4½x5¼	Gas.	2-3
Allis-Chalm.	18-30	2150	4	Own	4-4¾x6½x	GorK	3-4
Allis-Chalm.	10-18	875	4	Own	4-4¾x6½	G,K	4
Allwork. 2-G	14-28	1775	4	Own	4-4¾x6	GorK	3
Allwork. C	14-28	1525	4	Own	4-5 x6	GorK	4
AndrewsKin.D	18-36	2500	4	Clim.	4-5 x6½	GorK	4
Appleton	12-20	1500	4	Buda	4-4¼x5½	G,K	2-3
ARO. 1921-22	3-5	495	4	Own	1-4½x5	Gas.	1
Aultman-T.	15-30	2200	4	Clim.	4-5 x6½	G,K	4
Aultman-T.	22-45	3420	4	Own	4-5½x8	G,K	6
Aultman-T.	30-60	4500	4	Own	4-7 x9	G,K,D	8
Automot, B-3	12-24	1785	4	Here.	4-4 x5	Gas.	2-3
Avery, SR.Cul	5-10	....	4	Own	4-3 x4	G,K	..
Avery. Cult-C	.....	....	3	Own	6-3 x4	G,K	..
Avery. B	5-10	....	4	Own	4-3 x4	G,K	2
Avery. C	.....	....	4	Own	6-3 x4	G,K	..
Avery	8-16	....	4	Own	2-5½x6	G,K,D	2-3
Avery	12-20	....	4	Own	4-4¾x6	G,K,D	2-3
Avery	12-25	....	4	Own	2-6½x7	G,K,D	3-4
Avery	14-28	....	4	Own	4-4¾x7	G,K,D	3-4
Avery	18-36	....	4	Own	4-5½x6	G,K,D	4-5
Avery	25-50	....	4	Own	4-6½x7	G,K,D	5-6
Avery	45-65	....	4	Own	4-7¾x8	G,K,D	8-10
Bates	15-25	....	4	Own	4-4¼x6	Ker.	3
Bates Mule. H	15-25	....	4	Midw	4-4½x5¼	Gas	3
Bates Mule, F	18-25	....	*2	Midw	4-4½x5¼	Gas.	3
Bates Mule, G	25-35	....	*2	Midw	4-4½x6	Gas.	com.
Beeman, G	2-4	315	4	Own	1-3½x4½	Gas.	....
Best	30	3100	*2	Own	4-4¾x6½	G,K,D	4
Best	60	5450	*2	Own	4-6½x8½	G,K,D	8-9
Boring. 1921	.....	1850	3	Wauk	4-4¾x5¾	GorK	2
Burn-Oil, 1922	15-30	1495	4	Own	2-6¾x7	Ker.	3-4
Capital	15-30	1000	2	Own	4-4½x6	Gas.	3
Case	10-18	800	4	Own	4-3½x5	GorK	2
Case	15-27	1680	4	Own	4-4½x6	GorK	3
Case	22-40	3100	4	Own	4-5½x6¾	GorK	4-5
Caterpillar T11	25	3975	*2	Own	4-4¾x6	Gas.	4
Caterpillar T16	40	6050	*2	Own	4-6½x7	Gas.	6
Centaur	5-2½	385	2	N Way	2-4½x4½	GorK	1
Chase	12-25	1725	3	Buda	4-4½x5½	GorK	2-3
Chicago	40	2500	4	Own	4-4½x6	Gas.	4
Cletrac. F	9-16	845	*2	Own	4-3¼x4½	G,K,D	2
Cletrac. W	12-20	1495	*2	Own	4-4 x5½	G,K,D	2-3
Dakota. 4	15-27	1500	3	Dom,	4-4¾x6	Gas.	3
Dart. B.J.	15-30	1800	4	Buda	4-4½x6	Gas.	3-4
Depue. A	20-30	2500	4	Buda	4-4½x6	Gas.	4
Dill. D	20	2380	4	Cont.	4-4½x5½	Gas.	3
Dill. R.W.	20	2980	4	Midw.	4-4½x6	Gas.	3
Do-It-All. A	3-6	595	..	Own	1-4½x5	Gas.	1
Eagle. F	12-22	....	4	Own	2-7 x8	GorK	3-4
Eagle. F	16-30	....	4	Own	2-8 x8	GorK	4-5
E-B. AA	12-20	1445	4	Own	4-4¾x5	G,K,D	3
E-B. Q	12-20	925	4	Own	4-4¾x5	G,K,D	3
E-B	16-32	2080	4	Own	4-5¼x7	G,K,D	4
Evans	18-30	2000	4	Buda	4-4½x6	G,K	3
Fageol. D	9-12	1525	4	Lyc.	4-3½x5	Gas.	2
Farm Horse. B	18-30	1885	4	Clim.	4-5 x6½	G,K	3-4
Farquhar	15-25	....	4	Buda	4-4½x6	G,K,D	3-4
Farquhar	18-35	....	4	Own	4-6 x8	G,K,D	4-5
Farquhar	25-50	....	4	Own	4-7 x8	G,K,D	6-7
Fitch	4	20-35	....	4	Clim.	4-5 x6½	GorK
Flour City	20-35	....	4	Own	4-5¼x6	Ker.	4-6
Flour City	30-50	....	4	Own	4-6¾x7	Ker.	6-8
Flour City	40-70	....	4	Own	4-7½x9	Ker.	8-10
Fordson	.....	625	4	Own	4-4x5	G,K	2
Fox. E	20-40	3100	4	Own	4-5½x7½	G or K	4
Franklin. G	18-30	4000	*2	Clim.	4-5 x6½	G or K	3-4
Franklin. C	18-30	3350	*2	Clim.	4-5 x6½	G or K	3-4
Franklin. G2	18-30	4350	2	Clim.	4-5 x6½	G or K	3-4
Frick. A	12-20	....	4	Erd.	4-4 x6	G,K	2-3
Frick. C	15-28	....	4	Beav.	4-4¾x6	G,K	3-4
Grain Belt. A	18-36	$2150	4	Wauk.	4-4¾x6¾	G or K	4
Gray. 1920	18-36	2000	3	Wauk	4-4¾x6¾	Gas.	4
Ground Hog	19-31	2000	4	Erd.	4-4 x6	G or K	3
Gt. Western St	20-30	1950	4	Beav.	4-4¾x6	K	4
Hart-Parr. 20	20	945	4	Own	2-5¼x6½	K,D.	2
Hart-Parr. 30	30	1295	4	Own	2-6½x7	K,D.	3
Heider. D	9-16	1170	4	Wauk	4-4¼x5¾	G,K	2
Heider. C	12-20	1395	4	Wauk	4-4½x6¾	G,K	3
Heider. Cult	6-10	1050	4	LeR.	4-3½x4½	Gas.	1
Hicks	20-30	....	4	....	4-4½x6	K or G	4
Huber Light 4	12-25	1185	4	Wauk	4-4½x5¾	G or K	3
Huber Super 4	15-30	1885	4	Midw.	4-4½x6	Gas	3
Illinois, Super-Drive. C	18-30	....	4	Clim.	4-5 x6½	G,K	4
Imperial. E	40-70	4500	4	Own	4-7½x9	G,K,D	10
Indiana. F	5-10	895	2	LeR.	4-3½x4½	Gas.	1-2
International	8-16	900	4	Own	4-4¼x5	G,K,D	2
International	15-30	1750	4	Own	-5¼x8	G,K,D	4
J-T. N	20-40	....	*2	Chief.	4-4¾x6	G,K,D	3-4
Klumb. F	16-32	1475	4	Clim.	4-5 x6½	....	..
Knudsen. 1920	25-45	2500	4	Own	4-5 x9	Gas	4-6
LaCrosse. M	6-12	650	4	Own	2-4 x6	G,K	1
LaCrosse. G	12-24	985	4	Own	2-6 x7	G or K	3
Lauson. 5	12-25	1495	4	Midw.	4-4½x5¼	Gas.	3
Lauson. 20	15-25	1685	4	Beav	4-4½x6	G or K	3-4
Lauson. 21	15-30	1985	4	Beav.	4-4¾x6	G or K	3-4
Lauson Road	15-30	2225	4	Beav.	4-4¾x6	K	....
Leader. B	12-18	1095	4	Own	2-6 x6¾	G,K,D	2-3
Leader. N	16-32	1985	4	Clim.	4-5 x6½	G,K	3-4
Leader. GU	18-35	2775	*2	Clim.	4-5 x6½	G,K	3-4
Leonard. E	20-30	2530	4	Buda	4-4½x6	G,K	3
Linn. H4J	40-	4500	*	Cont.	4-4½x5½	Gas	4
Linn. W	60	5100	*	Wauk	4-5 x6¼	Gas	6
Little Giant, B	16-22	2200	4	Own	4-4½x5	K	4
Little Giant, A	26-35	3300	4	Own	4-5½x6	K	6
Lombard. 1921	85-150	....	*2	....	6-5½x6¾	Gas.	16
Lombard. 1921	50	....	*2	....	4-4¾x6½	....	6-10
Magnet. B	14-28	1875	4	Wauk	4-4½x6¼	K&G	3
Master Jr.	5-10	585	..	LeR.	-2¾x4	Gas.	1
MerryGar 1921	2	230	2	Evin	1-2½x2½	Gas.	..
Minne. All-P	12-25	900	4	Own	4-4½x7	G or K	3
Minne. Gen.P	17-30	1675	4	Own	4-4¾x7	G or K	3-4
Minne. Med.Duty	22-44	3000	4	Own	4-6 x7	G or K	5-6
Minne. HeavyDuty	35-70	4150	4	Own	4-7½x9	G or K	8-9
Mohawk. 1921	8-16	785	2	Light	4-3¼x4½	K or G	1-2
Moline Univ D	9-18	990	2	Own	4-3½x5	Gas.	2-3
Moline Orch.	9-18	1075	2	Own	4-3½x5	Gas.	2-3
Motor Macult	1½	195	2	Own	1-2¾x3½	Gas.	..
Motox	15-30	2250	4	Buda	4-4½x6	Gas.	3-4
NB. 1	3-6	425	4	Own	2-3¾x4	Gas.	1
Nichols-Shep. 20-42	20-42	3100	4	Own	8 x10	G or K	3-6
Nichols Shep. 25-50	25-50	3460	4	Own	9 x12	G or K	4-7
Nilson Senior	20-40	2475	5	Wauk	4-5 x6¼	G,K	4
Oil Pull. K	12-20	1485	4	Own	2-6 x8	K,D	3
Oil Pull. H	16-30	2285	4	Own	2-7 x8½	K,D	4
Oil Pull. G	20-40	3175	4	Own	2-8 x10	K,D	5-6
Oil Pull. E	30-60	4590	4	Own	2-10x12	K,D	8-10
Oldsmar GarK	2½-5	395	4	Own	1-5½x5½	Gas.	1
Oliver. A	15-30	....	*2	Beav.	4-4½x6	G or K	3-4
Once Over Tiller Mark. 6	12-25	3000	4	Strns	4-4½x6	Gas.	2
Parrett. K	15-30	1950	4	Pitt	4-4½x6	G,K	3
Peoria. L	12-25	1600	4	Clim.	4-5 x6½	G,K	3
Pioneer. G	18-36	....	4	Own	4-5½x6	G,K,D	4
Pioneer. C	30-60	....	4	Own	4-7 x8	Gas.	10
Plowman. A	15-30	1605	4	Buda	4-4½x6	G,K	3-4
Port Huron. A	12-25	$1500	4	Chief	4-3¾x6	G,K	3
Ranger Cul. T-20	8-16	....	4	LeR.	4-3½x4½	Gas.	1
Reed. A	15-30	1985	4*	Wauk	4-4½x6½	G or K	3-4
Reed. A-1	18-36	2185	4	Wauk	4-5 x6¼	Gas.	4
Reliable	10-20	885	4	Own	2-6 x7	Ker.	2
Rex	12-25	1600	4	Wauk	4-4¼x5¾	G or K	3
Russell	12-24	1500	4	Own	4-4¼x5¾	G or K	2-3
Russell	15-30	2200	4	Own	4-5 x6½	G or K	3-4
Russell	20-35	3000	4	Own	4-5½x7	G or K	4-5
Russell	30-60	5000	4	Own	4-8 x10	G or K	8-10
Samson. M	....	....	4	Nor	4-4 x5½	G,K	2
Sandusky. J	10-20	1250	4	Own	4-4¼x5½	G,K,D	2
Sandusky. E	15-35	1750	4	Own	4-5 x6½	G,K,D	4
Shawnee Com.	6-12	....	2	LeR.	4-3½x4½	Gas.	1
Shawnee Com.	9-18	....	2	Gray	4-3½x5	....	..
Shelby. D	15-30	....	4	Beav.	4-4¾x6	G,K	3
Shelby. C	10-20	....	4	Erd.	4-4 x6	G or K	2-3
Short Turn	20-40	1500	3	Beav.	4-4¾x6	G,K	3
Steady Pull	12-24	1485	4	Own	4-4 x5	Gas.	3
Stinson. 4E	18-36	1835	4	Beav.	4-4¾x6	G,K	4
Stone	20-40	2250	4	Beav.	4-4¾x6	G,K	4
Tioga. 3	15-27	2625	4	Wisc.	4-4½x6	Gas.	3-4
Titan	10-20	900	4	Own	2-6½x8	G,K,D	3
Topp. B	30-45	3500	4	Wauk	4-4¾x6¾	Gas.	3-4
Toro Cultivator	6-10	....	3	LeR	4-3½x4½	Gas.	2
Townsend	10-20	895	2	Own	4-6½x7	Ker.	2-3
Townsend	15-30	1485	2	Own	4-7 x8	Ker.	3-4
Townsend	25-50	2750	2	Own	4-8½x10	Ker.	4-8
Traction Motor	40-50	....	4	....	8-3¼x5	Gas.	4-5
Traylor. TB	6-12	715	4	LeR.	4-3½x4½	Gas.	1-2
Triumph. H	18-36	2450	2	Erd.	4-4¾x6	Ker.	4
Trundaar. 10	25-40	3750	*2	Wauk	4-5 x6½	G or K	4
Turner. 1921	14-25	1295	4	Buda	4-4¼x5½	G,K	3
Twin City	12-20	1580	4	Own	4-4¼x6	G,K	3
Twin City	20-35	3175	4	Own	4-5½x6¾	G,K	5
Twin City	40-65	5250	4	Own	4-7¾x9	G,K	8
Uncle Sam C20	12-20	1385	4	Weid.	4-4 x5½	G	2-3
Uncle Sam B19	20-30	2300	4	Beav.	4-4¾x6	G or K	3-4
Uncle Sam D21	20-30	1985	4	Beav.	4-4¾x6	G or K	3-4
Universal	1-4	475	2	Own	1-3½x5	G	1
Utilitor. 501	2½-4	380	4	Own	1-3½x4½	G	1
Victory. 1921	9-18	1350	4	Gray	4-3½x5	Gas.	2
Victory. 1921	15-30	1750	4	Wauk	4-4¼x5¾	Gas.	3
Vim. B	15-30	1650	4	Wauk	4-4½x5¼	G,K	3
Wallis. K	15-25	1600	4	Own	4-4¼x5¾	G,K	3
Waterloo. N	12-25	1450	4	Own	2-6½x7	G,K	3
Webfoot. 53	28-53	5000	*2	Wisc.	4-5¾x7	G,D	6
Wellington. B	12-22	....	4	Erd	4-4 x6	Ker.	2-3
Wellington. F	16-30	....	4	Chief	4-4¾x6	Ker.	3-4
Western. 1920	16-32	2100	4	Clim.	4-5 x6½	Gas.	4
Wetmore 21-22	12-25	1585	4	Wauk	4-4 x5¾	G,K	3
Whitney. B	9-18	595	4	Own	2-5½x6½	Gas.	2
Wichita. T	15-30	2000	4	Beav.	4-4½x6	G,K,D	3-4
Wisconsin. E	16-30	2250	4	Clim.	4-5 x6½	G or K	3
Wisconsin. F	20-40	2450	4	Wauk	4-5 x6½	G or K	4
Wisconsin, H	22-40	3200	4	Clim.	4-5½x7	G or K	4-6
Yuba. 12-20	12-20	2600	*2	Wisc.	4-4½x6¾	G,K,D	3
Yuba. 15-25	15-25	3100	*2	Wisc.	4-4½x6	G,K,D	..
Yuba. 23-35	20-35	4185	*2	Wisc.	4-5¾x7	G,K,D	4
Yuba. 25-40	25-40	4650	*2	Wisc.	4-5¾x7	G,K,D	..
Zelle	12-25	....	4	....	4-4½x5½	G or K	3

ABBREVIATIONS: G—Gasoline. K—Kerosene. D—Distillate. Plow capacity varies in relation to operating conditions. Figures are based on 14 in. plows. Engine Make: Beav.—Beaver. Clim.—Climax. Cont.—Continental. Dom.—Domas. Evin.—Evinrude. Here.—Hercules. LeR.—LeRoy. Midw.—Midwest. Nway.—New Way. Nor.—Northway. Strns.—Stearns. T.C.—Twin City. Wauk.—Waukesha. Weid.—Weidely. Wis.—Wisconsin. *—Crawler type. All others are wheel type.

COMING MOTOR EVENTS

AUTOMOBILE SHOWS

Buffalo	Buffalo Automobile Dealers' Assn.	Jan. 14-21
Philadelphia	Automobile Show	Jan. 14-22
Rochester	Automobile Show	Jan. 16-21
Tulsa, Okla.	Automobile Show	Jan. 16-21
Oakland, Calif.	Automobile Show	Jan. 16-22
Milwaukee	14th Annual Automobile Show	Jan. 19-25
San Francisco	Automotive Equipment Exposition	Jan. 21-27
Detroit	Automobile Show	Jan. 21-28
Cleveland	Cleveland Mfrs.-Dealers' Assn.	Jan. 21-28
Baltimore	Annual Automobile Show	Jan. 21-28
Portland, Ore.	Annual Automobile Show	Jan. 23-29
Montgomery, Ala.	Alabama Automobile Dealers' Assn.	Jan. 23
Binghamton, N. Y.	Binghamton Dealers' Assn.	Jan. 23-28
Toledo	Automobile Show	Jan. 23-28
Allentown, Pa.	Lehigh Automobile Trade Assn.	Jan. 28-Feb. 4
York, Pa.	York County Dealers' Assn.	Jan. 28-Feb. 4
Chicago	National Automobile Show	Jan. 28-Feb. 4
Chicago	Automobile Salon	Jan. 28-Feb. 4
Erie, Pa.	Automobile Show	Jan. 30-Feb. 4
Scranton, Pa.	Annual Automobile Show	Jan. 30-Feb. 4
Lancaster, Pa.	Automobile Trade Assn.	Feb. 1- 4
Pontiac	Pontiac Automobile Dealers' Assn.	Feb. 1-4
Columbus	Columbus Automobile Dealers' Assn.	Feb. 2- 8
Tampa, Fla.	South Florida Fair Assn.	Feb. 2-14
Troy, N. Y.	Eighth Annual Used Car Show	Feb. 4-11
Youngstown	Youngstown Dealers' Assn.	Feb. 4-11
Scranton, Pa.	Annual Motor Truck Show	Feb. 6- 9
London, Ont.	Nat'l Motor Show of West Canada	Feb. 6-11
Minneapolis	Tractor Show	Feb. 6-11
Minneapolis	Automobile Show	Feb. 4-11
Winnipeg, Can.	Canadian Equipment Assn.	Feb. 6-11
Schenectady	Schenectady Dealers' Assn.	Feb. 6-11
Flint, Mich.	Mich. Automotive Trade Assn.	Feb. 8-11
Kansas City	Kansas City Motor Dealers' Assn.	Feb. 11-18
Atlanta	Southern Automobile Show	Feb. 11-18
San Francisco	6th Annual Pacific Automobile Show.	Feb. 11-18
Kalamazoo, Mich.	Mich. Automotive Trade Assn.	Feb. 14-18
Albany	Automobile Dealers' Assn.	Feb. 18-25
Hartford, Conn.	Hartford Automobile Dealers' Assn.	Feb. 18-25
Duluth, Minn.	Automobile Show	Feb. 20
Bethlehem, Pa.	Automobile and Accessory Show	Feb. 20-25
Louisville, Ky.	14th Annual Automobile Show	Feb. 20-25
Syracuse	14th Annual Automobile Show	Feb. 20-25
Gr. Rapids, Mich.	Michigan Automotive Trade Assn.	Feb. 20-25
Deadwood, S. D.	Deadwood Business Club	Feb. 21-25
Springfield, Ill.	Automobile Show	Feb. 23-25
Montreal	Automobile Show	Feb. 25-Mar. 1
Des Moines	Winter Automobile Show	Feb. 26-Mar. 3
Bethlehem, Pa.	Truck and Tractor Show	Feb. 27-28
Elmira, N. Y.	Elmira Automobile Club	Feb. 27-Mar. 4
Muskegon, Mich.	Michigan Automotive Trade Assn.	Feb. 27-Mar. 4
Portland, Ore.	Portland Dealers' Assn.	Feb. 27-Mar. 4
Springfield, Mass.	7th Annual Automobile Show	Feb. 27-Mar. 4
Windsor, Ont.	Automobile Show	Feb. 27-March 4
Bay City, Mich.	Michigan Automotive Trade Assn.	Feb. 28-Mar. 4
Wichita, Kan.	Wichita Motor Trade Assn.	Feb. 28-Mar. 4
Ardmore, Okla.	Ardmore Automobile Dealers' Assn.	March
Galesburg, Ill.	Galesburg Automotive Dealers' Assn.	March
Madison, Wis.	Four Lakes Bldg.	March
San Antonio	Automobile Trades Assn.	March
St. Louis	Manufacturers' and Dealers' Assn.	March
Brooklyn	Eleventh Annual Show	Mar. 4-11
Saginaw, Mich.	Michigan Automotive Trade Assn.	Mar. 6-10
Indianapolis	Annual Automobile Show	Mar. 6-11
Nashville	Nashville Automobile Trades Assn.	Mar. 6-11
Wilmington, Del.	Wilmington Trade Assn.	Mar. 6-13
Denver	Denver Automobile Trade Assn.	Mar. 10-20
Boston	Annual Automobile Show	Mar. 11-18
Newark, N. J.	Newark Automobile Dealers' Assn.	Mar. 11-18
Boston	Automobile Salon	Mar. 13-18
Omaha	Omaha Automobile Trade Assn.	Mar. 13-18
Port Huron, Mich.	Michigan Automotive Trade Assn.	Mar. 15-18
Ypsilanti, Mich.	Michigan Automotive Trade Assn.	Mar. 21-22
Ann Arbor, Mich.	Michigan Automotive Trade Assn.	Mar. 24-25
Jacksonville, Ill.	Automobile Show	March 27
Ben. Harb., Mich.	Michigan Automotive Trade Assn.	Mar. 28-31
Bat. Creek, Mich.	Michigan Automotive Trade Assn.	April 2- 8

FOREIGN SHOWS

London, England	Automobile Show	Feb. 6-11
Santiago, Cuba	Annual Automobile Show	March, 1922
Rio de Janeiro	Automotive Exhibition	Sept., 1922

CONVENTIONS

Chicago	Am. Road Builders' Conv. and Show.	Jan. 17-20
Montgomery, Ala.	Automobile Dealers' Assn.	Jan. 23
Chicago	Fifth Annual N. A. D. A. Convention.	Jan. 30-31
Wichita, Kans.	Threshermen's Convention	Feb. 21-24

CHARLOTTE SHOW PROMISED

Charlotte, N. C., Jan. 13—That there will in all probability be an automobile show held this spring, under the auspices of the Charlotte Automotive Trades Assn. was indicated at the regular meeting of that organization held recently. At the meeting committees were appointed and a tentative time was discussed at some length.

It was not definitely agreed as to when the show would be held, although it was the opinion of most of the members present that the latter part of February or the first of March would be the best time for holding it.

PEORIA WON'T HAVE SHOW

Peoria, Ill., Jan. 14—At the regular monthly meeting of the Peoria, Ill., Automobile & Accessory Dealers' Assn., it was voted to abandon this year's show because it was impossible for the committee to find a suitable building since the Coliseum was destroyed by fire. Instead of the usual show, it was voted to set aside one week in the early spring which will be known as "Automobile Week," when each dealer will arrange a special display of his line in his own place of business.

INLAND RECEIVER SUIT

Indianapolis, Jan. 14—Receivership suit has been filed against the Inland Automobile Co. of this city, makers of convertible delivery bodies for Fords, which began business early in 1921.

C. K. Knudsen, president of the company, lists the assets at about $90,000 and the total amount of unpaid bills at $1330. He claims the company is entirely solvent, and that receivership suit was brought about by a former employee and small stockholder.

SPRINGFIELD SHOW DATES

Springfield, Ill., Jan. 14—The Springfield Auto Dealers' Assn. has settled upon the date for the annual show, which will be held Feb. 23-25, inclusive.

Basil W. Ogg is the show manager, with A. J. Dohl, Robert E. Hatcher, Jr., and Charles Edmands as an advisory committee.

ROLLS-ROYCE SALES HEADS

Springfield, Mass., Jan. 14—Rolls-Royce of America, Inc., has appointed J. E. Roberts as western sales manager, with headquarters in Congress Hotel, Chicago. He was formerly with the Cole Motor Co. D. W. Dunn has been named as eastern sales manager, with headquarters in Springfield. The company is strengthening its organization on both sales and production ends, and will soon enlarge its output to four cars a week in place of two a week.

ELGIN SALES INCREASE

Argo, Ill., Jan. 13—Elgin factory sales for the first six days in January show an increase of 22 per cent over the sales for the entire month of December. C. L. Alexander, sales promotion manager for the Elgin Motor Car Corp., says that his entire distributor and dealer organization show a more optimistic spirit than at any time during the past six months. January, he says, will show more business than any similar period during the past four months.